267

New Orleans Medical

and

Surgical Journal

Vol. 89 DECEMBER, 1936 No. 6

NUTRITIONAL DEFICIENCY "DISEASE."*

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The realization that disease may result from certain unkown substances in the diet has materialized only within recent years. Many signs and symptoms have been known to result from defects in secretion of the endocrine glands for a long period of time. With the discovery of the vitamins and the proof that they are essential to normal nutrition, signs and symptoms due to a deficient supply of these specific elements are being more frequently recognized. However, we are still largely dependent on the occurrence of a deficiency disease to recognize that a patient has received an inadequate supply of vitamins. It is worth nothing that no matter how deficient a diet may be, the authorities who prescribe it, or the people who habitually consume it, will quite honestly state their belief that it is sufficient. If an individual with a normally functioning gastrointestinal tract will only follow the dictates of a normal appetite in choosing his or her food, there will be little likelihood of developing a deficiency disease. As a rule, food fadists and individuals trying to lose weight, do not choose to follow their normal appetites, which no doubt, adds to the number of deficiency states. On the other hand, a large number of people live under conditions which prevent freedom in the choice of food. It is this group which probably suffers most from deficiency disease.

As a result of the newness of vitamin therapy and the spectacular results often obtained, a number of abuses have grown up regarding their therapeutic use. These abuses are exaggerated by the enthusiasm of the laity, manufacturers of vitamins, and influenced further by some members of the medical profession. The public has been persuaded to believe that vitamins are rare and expensive substances, and if the right trade name is selected, wonderful improvement in health is to be expected by those who consume them. The use of ordinary, inexpensive, common, natural foods would frequently suffice.

Inasmuch as the specific elements must be taken in as food or formed directly from the food, the condition of the gastrointestinal tract is of vital importance in deficiency disease. It is probable that some of the deficiency states which develop will be the result of mechanical or chemical alterations in the gastrointestinal tract. At present it is recognized that the changes in the gastrointestinal tract which may lead to the development of such conditions include atrophy of the mucous membrane and changes in the secretion of the normal digestive juices. Gastric hypo-acidity, achlorhydria and achylia gastrica, commonly found, if sought for, in nutritional deficiency states, likewise interfere with the proper assimilation of food. The loss of normal gastrointestinal secretions resulting from vomiting and diarrhea, further seriously interfere with the proper absorption of the food elements. Mechanical factors such as benign and malignant lesions, which obstruct or prevent contact of foods with a sufficient area of the gastrointestinal mucosa, also prevent proper absorption. Eusterman and O'Leary reported thirteen cases of pellagra resulting from benign and malignant lesions of the stomach occurring as a result of dysfunction and obstruction.

While beriberi, scurvy, pellagra, and sprue

*Read before the Louisiana State Medical Society, Lake Charles, April 27-29, 1936.

present certain signs and symptoms, such conditions usually represent extreme deficiencies, but milder symptoms occur in a minor form with much greater frequency, and it is important that they be recognized earlier. There is frequently an overlapping of symptoms of deficiency of the different nutritional elements and a deficiency in one may initiate or influence a deficiency in another. An example of this is the rather frequent appearance of pellagra and pernicious anemia concurrently. In these advanced nutritional states many different tissues and organs may be affected by the lack of the specific factors. Haden believes it is more nearly correct to consider clinical deficiency symptoms as deficiency disease, rather than deficiency diseases. Neuritis of pregnancy and alcoholism formerly thought to be due to some specific toxic agent, are now known to be due to the lack of specific nutritional elements.

Lettson first described alcoholic polyneuritis in 1787, and a direct neurotoxic effect of alcohol has been considered the causative agent. Six years ago, according to Strauss, Shattock suggested that the disease was caused chiefly by failure to take or assimilate food containing sufficient vitamin B and might be properly regarded as beriberi. In an attempt to prove this hypothesis Strauss selected ten patients suffering from alcoholic polyneuritis and allowed them to continue their customary daily intake of from one pint to one quart of spiritous liquor on condition that they consume a well balanced high vitamin diet supplemented with yeast or its products. Improvement in the neuritis occurred in every instance. He concluded that alcoholic polyneuritis does not result primarily from a direct neurotoxic effect of alcohol, but is probably the result of a dietary deficiency aided in some instances by disturbed gastrointestinal function.

The following is an illustrative case: Polyneuritis or dry beriberi (vitamin B deficiency); scurvy (vitamin C deficiency.)

CASE REPORT

L. L. S., a white male, aged 32, was admitted to the hospital October 27, 1933 with the following complaint: Severe burning pain in feet and legs. The patient stated that three months prior to admission a run down state necessitated the removal of infected tonsils. After about ten days his feet began to pain and burn him. Two weeks later, as a result of this continued pain and burning, all his teeth were extracted. Pyorrhea and receding gums had been troublesome for an indefinite period of time. The peripheral neuritis became more aggravated and he grew much weaker. His diet was further restricted after the removal of his teeth. He subsisted principally on soft, starchy foods until his admission to the hospital. For the relief of the excruciating pain he had been taking codein at frequent intervals. His past history was negative except that he had imbibed rather freely of spiritous liquors for the past several years and was informed that alcohol was the probable cause of the neuritis. On admission to the hospital he was barely able to walk due to weakness and severe pain in feet and legs. On account of ill health and despondency, suicide had been contemplated.

Examination: The patient was edentulous and had not used artificial teeth, superficial reflexes normal, the knee and tendo-achilles moderately exaggerated. Areas of anaesthesia and hyperesthesia involved the feet and legs. The soles of the feet were very sensitive to touch. The pulsation was normal in the dorsalis pedis, anterior and posterior tibial arteries. The pulse rate was extremely rapid and the blood pressure was 110/90. Physical examination otherwise essentially negative. The white, differential and red cell counts were within normal limits, hemoglobin 85 per cent, urine chemically and microscopically negative for abnormalities, blood Wassermann negative.

As a result of the extreme restlessness and delirium hot wet packs were used with beneficial effects. The use of codein was gradually withdrawn. He could not be encouraged to take a sufficient variety of nourishment. A severe stomatitis developed and the tongue became very painful and red which further interferred with the taking of nourishment. Shortly thereafter he developed an intractible bloody diarrhea. He also complained of intense burning throughout the entire gastrointestinal tract. It was then realized that he had a severe nutritional disturbance which probably accounted entirely for the polyneuritis and gastrointestinal symptoms. The gastric analysis revealed a total acidity of 15 and no free hydrochloric acid. The symptoms became more aggravated and his heart action continued extremely rapid and out of proportion to his general condition and temperature, which was never above 100 degrees. To complicate matters and to further interfere with his nutrition, nausea and vomiting ensued and he was unable for a period of several days to retain sufficient nourishment. It was difficult to restrain him in bed. The pain in feet and legs became unbearable and he continued to

express a desire to destroy himself. The severe gastrointestinal symptoms finally subsided and on a diet of pureed vegetables and fruit juices he began to show some improvement, and was discharged by ambulance twenty-five days after admission. He was instructed to continue a very liberal and mixed diet rich in vitmains, especially vitamin B. In addition he was advised to take a tablespoonful of brewer's yeast three times daily. On this dietary regime he continued to show improvement and was able to return to his office on crutches within one month. He improved more rapidly after obtaining properly fitted false teeth.

For a number of days he had noticed a blurring of his vision. Examination of eye grounds revealed a beginning optic neuritis. After a few weeks, his vision cleared and the optic neuritis subsided. Gastric analysis at this time showed a total acidity of 27 and free hydrochloric acid 9. He was encouraged to continue on the outlined diet and yeast. His improvement was slow but progressive and in May 1934 he was able to walk without crutches. He showed considerable gain in weight. As a result of a digestive upset, consisting of fullness and discomfort after eating, a gastric analysis was again made, revealing a total acidity of 96 and a free hydrochloric acid of 74. Correcting an indiscretion in diet brought about improvement of this complaint. At present he is in excellent health.

This case illustrates how confusing a diagnosis may appear. In the first place the symptoms of neuritis did not manifest themselves during the several years that he imbibed rather freely of spiritous liquor, but appeared only after his diet had been severely curtailed.

From minor symptoms of a partial deficiency he was precipitated into the zone of a complete deficiency disease by the removal of teeth and tonsils. This deficiency state resembled in every detail dry beriberi. This case further illustrates the importance of properly fitted teeth in the prevention of nutritional deficiency.

Within the past decade much information has been obtained regarding anemia and its association or dependence on defective or deficient nutrition. More complete information is yet to be obtained concerning the means of production of such an anemia (anemia associated with nutritional deficiency). At present there is proof that anemia may arise because of a lack in the body of any one of at least three classes of dietary substances: (1) iron, (2) vitamin C, (3) a substance found abundantly in the liver and to a lesser extent in certain other organs. Absence of this last named substance makes impossible normal blood formation, and anemia of the so-called pernicious type develops.

The effective substance or substances are becoming less mysterious as a result of the recent brilliant experiments of Greenspon who has provided a key to the understanding of the subject. As a result of these experiments he has shown that when peptic activity is sufficiently diminished or prevented by neutralization and low temperature, the principle in gastric juice alone is an effective anti-anemic agent. On the basis of these results he has reinterpreted Castle's experiments. The beef (or other source of extrinsic factor), when incubated with normal gastric juice binds pepsin and prevents it from inactivating the anti-anemic factor. It is therefore no longer necessary to assume the existence of an extrinsic factor.

In the human as stated above, dietary deficiency is seldom confined strictly to one factor. The combined deficiency of iron and the material effective in pernicious anemia is not rare in the same individual. Multiple deficiencies may occur in patients with anemia but usually one of the deficiencies is outstanding. The individual who has received for a long time only just enough of a nutritional substance such as vitamin or mineral to maintain health, may be precipitated into the zone of partial deficiency with the appearance of infection. No clinical signs of deficiency are likely to appear in this instance. If, however, the individual's poor state of nutrition permits the appearance of symptoms attributable to deficiency, and infection develops, then anemia, achlorhydria, polyneuritis, scurvy or some other nutritional defect is likely to appear.

The supplementary effect of diet must not be overlooked in observing the influence of specific substances. Therefore it is important that an adequate diet be taken by everyone. Knowledge of partial deficiency states in the human is still limited. It is obvious that more information is needed as to how to determine more precisely such states. It is a problem of concern to the health of every individual.

Case 2 represents multiple deficiency disease, macrocytic anemia, scurvy and sprue.

CASE REPORT

N. L. a white male, aged 68 years, a native of Illinois, complained chiefly of extreme weakness, progressive loss in weight, sore mouth and diarrhea. His illness began gradually two years ago with loss of appetite. On an empty stomach he had a sensation of fulness as if he had just completed a meal. For the past few months he had been unable to take but very little food at a time, due to the fact that his stomach apparently would not accommodate it. Weakness came on slowly but has progressed to the point where he is unable to be up and about except for a few hours at a time. He has been practically bed ridden for the past five months. His original weight was 140 lbs; his present weight is 75 lbs. Constipation has alternated with diarrhea almost since onset of his present illness. He averages about four very copious, light colored and fluffy stools daily at present. For the past several months his mouth and tongue have been very sore and bleed occasionally.

He has always lived in Illinois and came to Louisiana about five months ago. Shortly before coming South he was in a sanitarium in Illinois for two weeks. His local doctor wrote that following a roentgen ray examination of the gastrointestinal tract, he concluded that he had a cancer of the stomach. His family and past history were irrelevant.

On inspection he presented a markedly emaciated and moderately anemic appearance. His expression was bright in spite of being bed ridden. The skin was moist and thin. The subcutaneous fat over the entire body was entirely absent, which is contrary to what one usually finds in pernicious anemia. General muscular atrophy was present. The systolic blood pressure was 110, diastolic 80. The superficial and deep reflexes were normal, the knee jerk however, was sluggish. He was edentulous, plates fitted poorly, rendering them useless for mastication. The tongue was red, glazed, fissured and cartilaginous in appearance. The heart and lungs were normal. The abdomen was doughy and tympanitic. The upper border of liver dulness was in the seventh interspace, the lower border not palpable, (indicating considerable shrinkage of the liver). The total red cell count was 2,592,000, hemoglobin 65 per cent, total leukocyte count 4,350, neutrophiles 51 per cent, small lymphocytes 44, large 5 per cent, eosinophiles 2 per cent. The red blood cells were macrocytic in appearance. Blood Wasserman negative. Urine analysis negative except for a few hyaline and granular casts. Gastric analysis showed a total acidity of 44 and free HCl of 20. The stool was bulky, slate colored, very offensive, acid in reaction, no blood, parasites or ova but contained numerous fatty acid crystals, some free fat and vegetable cells. The duodenal content was scanty and digested one per cent starch in equal proportions but did not digest egg white.

He had been on a very limited diet, consisting mostly of milk and fat meat. All fat was eliminated from his diet and he was instructed to partake liberally of lean meat, pureed vegetables, and very sparingly of starches and sweets. In addition he was instructed to take 300 grams of liver extract daily. In the way of medication, panteric tablets were prescribed. Three months later he had undergone marked improvement with a gain of 37 pounds. His appetite was voracious; stomach capacity had increased considerably. The stools had changed to a brownish color, were less bulky and averaged one to two daily. The tongue was less glazed, red and painless. There was a noticeable increase in subcutaneous fat and general muscular development. The duodenal content was abundant and thick, showing active digestion of starch and protein.

Ashford defines sprue as a chronic wasting disease generally native to tropical countries, characterized by excoriation and sore tongue, excessive intestinal fermentation and light colored fluffy stools, usually based on exhaustion processes, especially of the digestive glandular apparatus, due to nutritional imbalance, low in the complete protein molecule, high in carbohydrates and fats, and accompanied by colonization in the intestinal tract of monilia psylosis (Ashford 1914). Ashford further states that the greatest underlying factor in most cases of sprue is insufficiency in vital food elements, especially protein.

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DISCUSSION

Dr. M. D. Hargrove (Shreveport): Dr. Kerlin has discussed a very important and interesting subject. We have realized lately that there are certain types of deficiency disease due to a deficiency of vitamins or groups of vitamins. I would like to emphasize one point Dr. Kerlin made at the beginning of his paper, that is, that the use of vitamins is probably being grossly abused. More people are being given vitamins A, B, and D, who have absolutely no need for vitamins in that form. The majority of people who are normal otherwise get sufficient supply of these vitamins in their ordinary diet.

Another point is that a great many of these deficiency diseases are due not to deficiency in intake, but a deficiency in ability to utilize the food that is eaten. We see that so often in the Shreveport Charity Hospital, where they come in diagnosed as pellagra, are treated for pellagra, and at autopsy you will see a lesion in the intestinal tract that has prevented utilization of whatever food that patient took.

Dr. N. P. Liles (Bastrop): This paper is of peculiar interest to me as I am very much interested in nutritional deficiency diseases in school children. I have examined in the last seven years around 28,000 white and colored school children. Malnutrition due to various causes was an outstanding defect. Nutritional deficiency dieases according to my observation and records reached its climax during the years 1930-32. A "nutritional" thermometer showed 20 per cent of white children free from any nutritional diseases, negroes 16 per cent. These were improved in 1933-34, the thermometer rose from 20 to 60 per cent of the children showing no nutritional deficiency diseases. With improvement of economic conditions I predict by the end of the present school session records will reveal that 80 per cent of our children will be well nourished. It is appalling the number of children failing to make their grades and many of these failures are due to nutritional disturbances. I am making an effort to teach that we should not depend too much on highly flavored commercial food products, but should get back to the old fashioned way of eating such good foods as our appetite calls for; wholesome, grown at home and prepared in the kitchen, rough foods that children and adults must chew, not drink; a bowl of good "pot-liquor" and corn bread is perhaps more nutritious than a bowl of similar size of some highly advertised food. I am convinced that we are not giving enough time in teaching children and adults the sound fundamental and practical things about nutrition. I believe the private physician should take more time in advising his patients on the fundamentals of nutrition.

Dr. Edgar Hull (New Orleans): There is one statement Dr. Kerlin made upon which I will take issue very mildly and that is, if patients can get proper food, they will take it. This is perhaps true of children; they will usually pick out foods that they need if they are given free choice. With adults, the question of habit, likes and dislikes come in a great deal; people eat different foods that they have been taught to eat, and follow certain dietary customs and habits. For instance, I saw a patient a few days ago who definitely had a dietary deficiency, a colored woman, who lives on a farm, where she can get abundant milk, eggs, and fresh vegetables, but who lives mostly on white bread, beans, and salt meat.

Some seven or eight years ago, when Dr. Scott and Dr. Herrmann investigated an outbreak of beriberi in south Louisiana they found that the natives of this part of the state lived mostly on polished rice. They raised rice but did not eat their own rice; they sold it and bought polished mill rice.

I think, therefore, that it is important to investigate the dietary history regarding possible dietary deficiencies, even in patients who can afford the best of foods.

Dr. W. S. Kerlin (In conclusion): I would like to say that we should look for the initial symptoms of deficiency disease rather than wait until they are advanced. In endocrine disturbances we have learned to recognize fairly accurately the symptoms of dificiency of the different glands, even the minor symptoms are being more frequently recognized. In the future it is to be hoped that we will likewise recognize the early symptoms of nutritional deficiency disease, rather than wait until the symptoms and signs are full blown, when most anyone could recognize them.

THE MANAGEMENT OF ABORTION WITH SPECIAL REFERENCE TO THE INCOMPLETE VARIETY*

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The frequency of the occurrence of abortion has been very difficult to estimate with any degree of accuracy, chiefly due, of course, to the fact that such cases are not reported. Taussig,[1] in his recent very exhaustive study, states that in urban practice it occurs once to about every two and a half full term deliveries, with a rate, according to Plass, of one to five deliveries in rural districts. Based on these figures, there would be about 681,600 abortions annually in

*Read before the Louisiana State Medical Society, Lake Charles, April 27-29, 1936.

the United States. All types included, Taussig feels that a mortality rate of 1.2 to 2 per cent is the correct estimate, and that 8,000 to 10,000 deaths per year occur in the United States as a result of abortion. Approximately 4,000 are yearly recorded as due to abortion; the others are filed under various diagnoses. There is no question that the practice of criminal abortion has increased considerably in all civilized countries in recent years.

ETIOLOGY

In many cases of spontaneous abortion, it is impossible to ascertain the cause of this occurrence. Careful examination of the specimen will often show that there has been defective development, with absorption or death of the embryo, so that the abortion is inevitable from the beginning. The cause of this can only be surmised, but it may be explained in some cases as being due to defective ova or spermatozoa, to faulty development of the trophoblast in the pre-placental stage, to endometrial disease, to endocrine disorders (especially hypo or hyperthyroidism), to corpus luteum insufficiency, to dietary errors (calcium deficiency, lowered sugar tolerance, insufficient amount of vitamin E); in many cases, of course, the cause cannot be determined. Local or general maternal infections, acute or chronic, have been incriminated as causes of abortion, as well as pathologic conditions in the pelvis, such as old lacerations, uterine malpositions, uterine or ovarian tumors, infantile uterus, various forms of double uterus, or adhesions. The influence of accident or injury as a cause of abortion has probably been over estimated, but in some instances there appears to be sufficient evidence to support this idea. Such cases may have a medico-legal aspect. Sexual intercourse is considered by many to be a frequent cause of abortion, especially if the uterus is retroverted. Severe psychic shock is considered a factor of importance by many writers.

PROPHYLAXIS

It is apparent from the above that, in the case of a woman giving a history of one or more abortions, careful study of both husband and wife may disclose a clue to guide us in treatment, before or early in pregnancy, designed to prevent a repetition. Personally, we have frequently found a low basal metabolic rate in the mother, and have given such patients thyroid extract before and during the pregnancy, with most satisfactory results. We are inclined to agree with Litzenberg, Carl Davis and others, who feel that the basal metabolic rate determination should be a routine in early pregnancy. Falls and his co-workers report success in treating habitual abortion with progestin. If any of the various abnomalities mentioned above are found, they should be corrected, preferably before another pregnancy occurs, or early in pregnancy, if possible. In one of our patients, the third pregnancy was carried to a successful termination by practically continuous rest in bed, after two abortions at the fifth month. According to Taussig the diet of these patients should include plenty of calcium, as well as vitamin B (10 drops of Viosterol 2 or 3 times daily), and vitamin E (such as wheat germ oil).

We usually subdivide the topic of abortion proper into: (a) threatened; (b) inevitable; (c) incomplete; (d) septic, and (e) missed abortion. These terms define themselves, except the last, which will be explained later. Let us consider then seriatim.

Threatened abortion is characterized by: (1) a bloody vaginal discharge, varying from slight spotting to a fairly free flow of bright red blood, with clots; (2) at times a preliminary mucous vaginal discharge; (3) pain, which may be a low backache or a cramping, colicky pain in the lower abdomen. In our practice, we usually find that the bleeding, without pain, is the first noticeable manifestation, so that we warn all patients to notify us at once of the slightest show of blood. Some patients claim that they menstruate once or twice after becoming pregnant, but we doubt the accuracy of the statement. The more advanced the pregnancy the greater is the amount of bleeding, and the more severe is the pain. Examination will disclose the usual findings of pregnancy, plus a somewhat firmer consistency of the uterus; the cervix is usually closed with no obliteration; there is a moderate amount of bleeding, with some clots in the vagina. We do not subscribe to the warning of some writers that such a patient should not be

examined vaginally, for fear of converting a threatened into an inevitable abortion. Carefully and gently done, there should be no danger, and one will occasionally find, in a patient with slight bleeding and little or no pain, that the abortion is already partially or totally completed, with either the fetus or the whole product of conception lying in the vagina. It is well to request the patient or family, when first notified, to save all material passed, as well as soiled pads and bed linen, for inspection; otherwise a small fetus or an early intact ovum may be thrown away and thus the correct diagnosis be missed. In connection with this question of diagnosis, let us bear in mind that it is often very difficult to differentiate between threatened or incomplete abortion, on the one hand, and ectopic pregnancy on the other. If we remember that, in the latter condition, the pain practically always precedes the bleeding, and is much more severe, so that the patient often feels weak or actually faints, our errors should be few and far between.

Granted that a correct diagnosis of threatened abortion is made, the first and most important step in the treatment is absolute rest in bed. This is to be strongly emphasized. Next is the hypodermatic administration of one-quarter grain morphine sulphate repeated in one-half to two hours, if necessary. Next comes the regular administration, every three or four hours, of some opium preparation, generally by mouth. Paregoric and codeine are too mild to be of any value. Tincture of opium or opium pills may be used. Dilaudid, one thirty-second of a grain, or pantopon, one-third grain, are preferable. The disadvantage is that opium in any form frequently causes nausea and vomiting, or aggravates the already existing nausea. In such a case, opium by suppository may be tried, or a barbiturate, such as luminal, but the efficacy of such a drug is slight. Constipation is relieved by mineral oil plus an occasional enema, strong laxatives and purgatives being avoided. Progestin (in the form of prolution), one quarter to one rabbit unit (ampoule) every one to two days for two or three days as advocated by Falls, has been of value in some of our recent cases. A light diet is allowed. The patient must stay in bed for five to seven days after all bleeding has ceased; the opiate is stopped two or three days before she is allowed up, provided the symptoms have disappeared.

INEVITABLE ABORTION

According to Williams, an abortion is to be considered as inevitable only if the membranes have ruptured. Naturally, it is often impossible to settle this point in early pregnancy. Taussig stated that the abortion is inevitable if: (a) there is considerable blood loss or a bloody discharge for several weeks; (b) the pains are regular, severe, and cramping; (c) in a primipara, the cervix is dilated to admit one finger (this does not hold in the case of a multipara); (d) the membranes are ruptured; (e) the fact of the fetal death has been established. Rock states that the soiling of five napkins in one day with bright red blood, or of three per day for five days, means that the abortion is inevitable. A brownish, grumous discharge usually has the same significance, as does the persistence of the symptoms for a week or more in spite of treatment.

Once the diagnosis of inevitable abortion has been established, the uterus should be emptied as promptly as possible, as otherwise the bleeding will continue and infectious organisms may ascend from the vagina into the uterus through the open cervix. This does not mean that forcible dilatation and vigorous operative measures are necessary. (1) Some cases may be completed by the administration of quinine, five grains every four hours, combined with pituitary extract hypodermatically, or with one of the newer ergot preparations (ergotrate or ergoklonkin by mouth or by the hypodermic route. (2) If there is free bleeding and the cervix is closed, a tight cervico-vaginal pack is advisable, plus medication as above. (3) If the cervix is open, the ovum can be extrated with sponge or ovum forceps, or with the finger. (4) In the first two months, graduated metal dilators may be used gently, and then empty the uterus with a dull curette or with the sponge forceps. It should always be remembered that there is danger of perforation when using the curette in the aborting uterus. After evacuation, it is not advisable to place a pack in the uterus, unless there is free bleding. This rarely occurs if the uterus is completely emptied.

INCOMPLETE ABORTION

The diagnosis of this condition is often extremely difficult hence the importance of inspecting the material passed, the blood clots, pads, and bed linen. Frequently we do not know whether the abortion is threatened or is incomplete; in such a case the patient should be treated for threatened abortion. If there is a continuation of free bleeding, if there is an offensive odor to the discharge, if the cervix remains open, and if the uterus remains enlarged, the presumption of incomplete abortion is strengthened. However, in the first two months the cervix may remain closed and the uterus may be of a rather firm consistency. Once the diagnosis is clear, the retained fragments should be removed, provided the patient is not infected. This removal is best accomplished under some form of anesthesia by the use of the finger or the sponge or ovum forceps; the curette is to be used only if the cervix is so tightly closed as not to admit the finger or the sponge forceps, and should be employed very gently. A pack may bring about the expulsion of a completely retained placenta at the third, fourth, or fifth months, but will not be of much avail in the first few weeks, or in case only a few fragments remain. The same is true of pituitary extract or ergot preparations. A pack is placed in the uterus after evacuation only if free bleeding persists.

SEPTIC ABORTION

An abortion patient, with retention of part or all of the products of conception, and with temperature of 100° F. or over for more than 24 hours, is considered septic. Perhaps the majority of these cases are due to criminal interference, but some are due to invasion of the uterus by bacteria from the vagina, ascending through the partially dilated cervix in slowly progressive inevitable or incomplete abortions. There is much argument as to the proper course to pursue, some favoring active intervention, others preferring the conservative method and refraining from invasion of the uterine cavity as long as fever is present. Time will not permit a detailed review of the pros and cons of the matter. All are agreed that if the infection has extended past the uterus, as shown by parametrial thickening or tenderness, evacuation should not be performed unless our hand is forced by free bleeding. However, if the cervix is open, and the offending material can be removed gently with the sponge or ovum forceps, this should be done. This procedure is safer if there is no extension of the infection. If the cervix is closed, medical treatment (quinine, with pituitary extract or an ergot preparation) may be tried. If this fails, gentle evacuation with the forceps after the temperature is normal for three to five days appears to be safe. The finger or the curette should not be used in such a case, for fear of the danger of spreading the infection. Krieger, Schwartz. and others advocate drainage of the uterus by strips of gauze soaked in alcohol, and state that this frequently brings about spontaneous expulsion. Others use carbon pencils inserted in the uterus, before or after evacuation, claiming that this precedure aids in clearing up the infection. The main idea in the treatment of septic abortion, then, is the avoidance of the spread of the infection to the surrounding tissues or to the blood stream, which is particularly important if the infection is a streptococcal one.

MISSED ABORTION

This term is usually applied to the retention of the products of conception for two or more months after the death of the fetus. It is a fairly common occurrence, much more so than is commonly realized. There may be a history suggestive of a threatened abortion. The uterus fails to increase in size, fetal movements are not felt at the time that they are normally expected, and there may be an occasional brownish discharge. As a rule, there are no general symptoms of malaise, bad taste in the mouth or mild fever, which are usually considered to be noted when there is a dead fetus in the uterus. The Aschheim-Zondek and Friedman tests are negative. It usually requires two or three weeks of observation to establish the diagnosis. Once we are sure, the treatment is to empty the uterus, either in one sitting or by the use of the catheter and pack. Prolonged waiting will often be rewarded by spontaneous expulsion, but this is not by any means constant, hence evacuation is better. The patients are especially prone to free bleeding when the uterus is emptied.

SUMMARY

To summarize, we may say that many abortions may be prevented by correction of paternal or maternal abnormalities before the inception of pregnancy, and that many others can be prevented by prompt and careful treatment of threatened abortion. Extreme care as regards asepsis, together with gentleness of manipulations, will lower the maternal mortality rates when treating cases of incomplete or inevitable abortion. In the treatment of septic abortion, judgment as to the proper time for interference and careful choice of the best method to pursue are the most important factors.

DISCUSSION

Dr. T. B. Sellers (New Orleans): Dr. King is one of the few men in the state who can speak authoritatively on this important subject. For many years he has been in charge of a large service set aside for the management of these cases at the Charity Hospital.

I agree heartily with everything Dr. King has said and wish only to elaborate a few points. Repeated spontaneous abortions require a great deal of study. The patient should have not only a local but a general examination. Certain cases of repeated abortions with basal metabolic readings within normal limits have been carried to term by the administration of thyroid. Others with negative Wassermanns have been carried to term by the use of iodids and mercury. In cases of habitual abortion, the use of large doses of corlutin as suggested by Krohn and Falls, or progestin, is valuable. Since their report, I have had five cases of habitual abortion successfully carried to term by the use of corlutin. I have also used vitamin E or wheat germ oil in a number of cases with good results.

As to the wisdom of making a gynecologic examination in threatened abortion, I concur in Dr. King's opinion that such examination can be done safely if the examiner realizes that gentleness is essential and that the same aseptic precautions should be followed in preparation of the patient and surgeon as for an abdominal operation.

Concerning the time element in threatened abortion, the social status of the patient as well as the severity of the symptoms is a factor which necessarily influences the method of handling this group of cases.

In emptying the uterus in cases of missed abortion a word of warning against attending rapid instrumental dilatation of the cervix is important. It is better to pack the cervix and vagina and use oxytoxic agents, permitting the cervix to soften prior to dilatation; otherwise much damage can be done an unyielding cervix. Should this fail, vaginal hysterotomy is the next procedure of choice.

Non-febrile cases of incomplete abortion which are potentially infected should be observed for four or five days prior to removing any retained secundines. This is very important. If there is excessive bleeding, it is best to remove aseptically any material in the cervical canal and pack the cervix and vagina firmly, thus avoiding intrauterine instrumentation.

In septic abortion, the majority of obstetricians and gynecologists agree that non-operative treatment is the procedure of choice. Notwithstanding this fact, it is difficult at times to follow this course. The patient's family usually feels that the thing of paramount importance is to get rid of the retained products of conception and often they demand immediate action. Unfortunately, this opinion is shared by many doctors, who refer patients insisting that something be done at once to empty the uterus. In an occasional case, the results of emptying the uterus are spectacular, the temperature dropping, perhaps, from 105 to normal within six to eight hours. This is the exception rather than the rule; it is more likely that if we go in too early against our better judgment, the next day we find that instrumentation has opened up the lymphatics, caused a rise in temperature, and, perhaps, in forty-eight hours the patient dies. More of these patients have lost their lives as a result of surgery than have been benefitted by it.

Briefly, the conservative or non-operative treatment of such patients is as follows: elevation of the head of the bed, maintenance of fluid and mineral balance; supportive measures such as a high caloric diet; if food is not retained, a minimum of 3000 c.c. of five per cent glucose daily; repeated small transfusions of 250 to 350 c.c. of blood once or twice a day (of course, the first transfusion may be larger if the patient is not too toxic); heat to the abdomen by means of stupes or the heat tent continuously, and heat to the vaginal vault by means of the Elliott Treatment Regulator. I believe that vaccine therapy has a very limited place in the treatment of these cases.

Dr. King has mentioned the importance of repeated general examinations in the search for complicating factors. It is important that we remember the possibility of abscess in the cul-de-sac as well as cardiac and pulmonary complications.

Dr. Walter E. Levy (New Orleans): It is not the old corpus luteum extract that is being used for these repeated abortions, but this new concentrate, progestin, in the form of proluton. I think I had the first case in the city that carried on, after habitual abortion, with this corpus luteum extract, progestin. I did a diagnostic curettage and found excess of the follicular hormone.

I now have four patients, one delivered, one nearly to term, and two others whom I did not

put to bed at all on progestin, letting them lead a normal existence. As a matter of fact, one woman was carried along for seven months but started with some uterine cramps the other day, and on two doses of progestin was in perfect ease and returned to her duties.

In women whom I treat for sterility and find their basal metabolism low, by all means should be carried along with estimated doses of thyroid.

Vaginal examination, I think, should be made in every case because, as Dr. Graffagnino showed in a large series, a great number admitted with the diagnosis of incomplete abortion were found to be ectopic pregnancies. The time to treat an ectopic is now, and not when it ruptures. About the Wassermann reaction in syphilis, I have found that syphilis is not a cause for early loss of pregnancy, or abortions. It will cause the death of a fetus around six, seven or eight months, but not very early.

Dr. E. L. King (New Orleans): I have nothing very much to say, except to concur in what has been said. I did not mention syphilis specifically because it is not considered a cause of early abortion, but that does not mean you should not treat syphilis. If possible, every pregnant woman should have a Wassermann done, certainly in the charity services. Every pregnant woman having syphilis should be treated.

I also want to emphasize what the doctor said about the surgical aseptic technic of examining a patient with threatened abortion, just as though the woman were going to deliver. I know that a good many of them have been infected by careless examination because it seemed to be only a small affair, pregnant one month instead of nine months.

MATERNAL MORTALITY IN LOUISIANA*

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As the facts of maternal mortality become more widely known, the physician's responsibility for leadership in improving the status of maternal care becomes more and more impressive. We cannot forget that puerperal death statistics are a matter of public record and that our sophisticated laity is becoming more and more sensitive to just such social ills as we have under consideration.

Even the most casual observation reveals the patent truth that waste of maternal life on the sacrifical altar of the species is due in large part to controllable causes. A wealth of obstetrical knowledge has been inherited from our progenitors which if properly disseminated and applied would result in universal and skillful obstetrical practice with a consequent reduction in the price of maternity. Thousands of infant and maternal lives could be saved, and loss of human happiness could be prevented beyond the estimation of material value. To accomplish an improvement in maternal mortality it is advisable first to become familiar with the results obtained under our present system of obstetrical practice.

This presentation is an attempt to give at least a kaliedoscopic view of the results of obstetrical practice in Louisiana obtained under the contemporary system. The available data are taken principally from the Louisiana State Bureau of Vital Statistics, United States Bureau of Census, and the Children's Bureau. The information, though taken from official sources, is not without many inaccuracies. Though the data are not accurate enough to compare with other maternal mortality studies, it is hoped that it will sensitize the profession to the importance of its obligations to the quesion and that the necessiy of the cooperation of all physicians in a more accurate and detailed

*Read before the Louisiana State Medical Society, Lake Charles, April 27-29, 1936.

Table 1

Causes of Death	1932				1933			
	White		Col.		White		Col.	
	No.	%	No.	%	No.	%	No.	%
Diseases of Pregnancy	170	15.1	161	8.7	155	14.4	158	9.1
Tuberculosis	139	12.4	214	11.5	125	11.6	338	10.9
Organic Diseases of the Heart	53	4.7	152	8.2	64	5.0	162	9.3
Pneumonias	72	6.4	109	5.3	48	4.4	70	4.0
Nephritis	66	5.0	108	5.3	57	5.3	124	7.2
All Other Causes	1118		1847		1075		1734	

Comparison of puerperal diseases and other most common causes of death in white and colored women between ages of 15 and 45 years in Louisiana without regard to marital status.
(From Louisiana State Bureau of Vital Statistics)

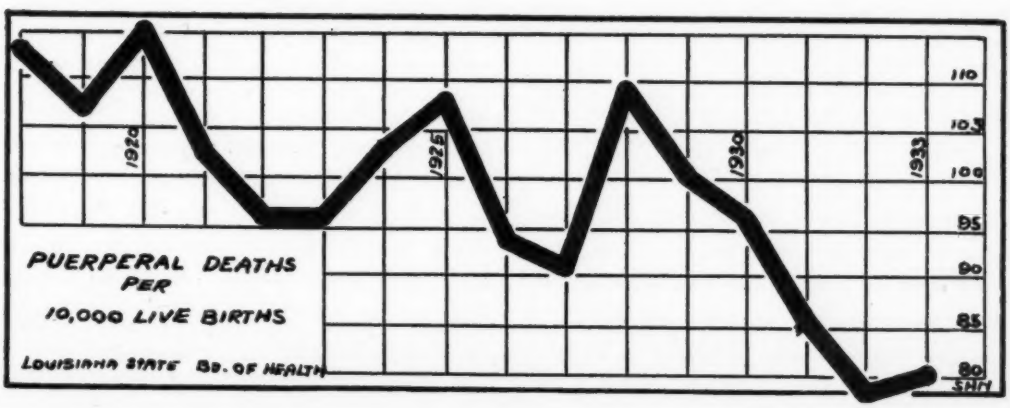
study of our obstetrical "back yard" will be appreciated.

The source of data in the charts showing the puerperal mortality trend in Louisiana, the relative trend in other areas of the United States Birth Registration Area, and the relative importance of puerperal diseases with other common causes of death in Louisiana women are given with respective charts or tables. Three hundred and forty-three death certificates which represent all the puerperal deaths in Louisiana in 1934 were examined for the purpose of gaining an idea of the cause and per cent distribution of various puerperal diseases as a cause of death in several groups of women.

The International List of the Cause of Death was used to classify the diagnoses. The titles included in the list of diagnoses are defined as follows: Abortion with septic conditions includes miscarriage, premature labor, or missed abortion. It implies the termination of pregnancy before the twenty-eighth week uterogestation. Abortion without septic conditions refers usually to hemorrhagic shock following abortion. Ectopic gestation is self explanatory. Puerperal hemorrhage includes placenta previa, postpartum hemorrhage, premature separation of the placenta, and molar pregnancy. Puerperal septicemia implies postnatal sepsis after the twenty-eighth week of uterogestation, puerperal peritonitis, phlegmasia alba dolens and pyelitis of pregnancy. Puerperal albuminuria and eclampsia indicates preeclampsia, chronic nephritis with pregnancy, eclampsia and uremia with pregnancy. Other toxemias of pregnancy include pernicious nausea and vomiting. Under embolus and sudden death, are placed deaths occuring suddenly without a satisfactory explanation of the cause. Other accidents of labor include death following or during cesarean section not due to infection; deaths during or following instrumental or breech deliveries; rupture of the uterus; abnormal or difficult labor; faulty presentations; inversion of the uterus; tears of the cervix or perineum; postpartum shock due to hemorrhage; and similar terms. The term "other and unspecified conditions of the puerperal state," includes deaths occurring during pregnancy, or the puerperium resulting from diseases independent of the pregnancy.

When more than one puerperal condition appears as the cause of death, the death was assigned to one of them in accordance with the rules in the Manual of Joint Causes of Death.[2] For example, if cesarean section and eclampsia appeared, the death was assigned to puerperal albuminuria and eclampsia. If cesarean section, eclampsia, and peritonitis appeared, the death was assigned to puerperal septicemia. Pneumonia, causing death before the onset of labor, was classified under unspecified conditions of the puerperal state. In some cases the cause of death stated on the death certificate did not seem correct to the author. In all cases, however, feeling that the attending physician would be qualified to state the cause of death, except when it was necessitated by the Manual of Joint Causes of Death, the diagnoses were not changed.

When the three-hundred and forty-three



death certificates were corrected by reference to the Manual of Joint Causes of Death, six were excluded as non-puerperal. One (colored) was assigned to diphtheria, (No. 10 International List). The remaining five excluded cases (all white), were assigned to the following causes: Two cases of pernicious anemia (No. 71 International List): malaria (No. 38 International List) one case, and myocarditis (No. 93a International List) two cases.

TREND OF MATERNAL MORTALITY IN LOUISIANA

The year to year puerperal death rate* is shown in the Chart. The trend is seen to be slightly down, and is well sustained in recent years. In some years, however, it is seen to be astoundingly high. In no year does it approach the relatively lower rate of 68 per 10,000 live births of the United States Birth Registration Area during the same period.

Table 2

	1927	1928	1929	1930	1931	1932	1933	Av.
Southern								
Louisiana	91	114	99	100	86	81	84	93
Alabama	80	94	99	90	81	76	75	85
Arkansas	90	88	91	94	71	66	78	82
Florida	110	101	95	102	104	101	115	104
Mississippi	87	94	89	96	80	63	73	83
Mountain								
Colorado	....	96	86	74	70	74	62	66
New Mexico	63	59	55	56	57	57	54	57
Wyoming	87	65	63	92	84	66	57	73
Arizona	89	77	78	65	82	81	65	76
West Sea Board								
California	58	61	57	51	62	56	46	55
Nevada	....	....	63	105	98	63	82	84
Oregon	64	61	59	58	45	47	55	55
Washington	66	72	62	62	64	60	64	64
East Sea Board								
Pennsylvania	64	61	65	60	65	61	58	62
Rhode Island	64	60	79	57	55	60	57	61
New York	61	59	56	56	59	59	62	58
New Jersey	63	59	55	56	57	57	54	56
Middle States								
Missouri	67	70	73	61	73	67	58	67
Kansas	63	77	68	73	62	62	55	65
Iowa	59	48	56	59	50	54	53	54
Illinois	56	57	68	55	55	56	50	56
AREA	65	69	70	67	66	63	62	66

Trend of maternal mortality per 10,000 live births in Louisiana as compared to certain other states in the U. S. Birth Registration Area 1927-1934. All states picked at random except Louisiana and Florida.

RELATIVE IMPORTANCE OF PUERPERAL DISEASES AS A CAUSE OF DEATH IN LOUISIANA WOMEN IN THE CHILD BEARING AGE

As noted in Table 1, puerperal diseases caused death in white women in the age group of 15 to 45 years more frequently than any other five most common causes of death accounting for 15.1 per cent of deaths in 1932, and 14.4 per cent in 1933. In the colored women of the same age group, puerperal diseases were second only to tuberculosis and perhaps heart disease as causes of death. It may be that the colored women are not more immune to puerperal diseases than white women, but simply more liable to the other devastating diseases, particularly tuberculosis.

Table 3

	1927	1928	1929	1930	1931	1932	1933	Average
Area	65	69	70	67	66	63	62	79
White	59	63	63	62	60	58	56	60
Col.	113	121	120	117	108	98	97	110
Louisiana	91	114	99	100	86	81	84	93
White	70	90	80	84	73	70	74	78
Col.	126	154	130	125	106	96	98	119

Trend of maternal mortality per 10,000 live births by color in U. S. Birth Registration Area having 1,500 or more colored births and in Louisiana in 1927-1934.
(U. S. Department of Labor, Children's Bureau.)

PUERPERAL DEATH RATES IN LOUISIANA AND OTHER STATES IN SEVERAL GEOGRAPHIC AREAS

A comparative study of puerperal death rates in Louisiana and sample states of several geographic areas of the United States birth registration areas including seven years study is shown in Table 2. Twenty-two states taken as samples are included in the table. The group of states showed a puerperal death rate of 66 per 10,000 live births, while Louisiana had a rate of 93 deaths per 10,000 live births, maintaining at the same time a much higher death rate than any of the states with the sole exception of Florida which presented a rate of 104 per 10,000 live births in the same period.

RELATIVE SIGNIFICANCE OF COLORED PUERPERAL DEATHS IN LOUISIANA AND OTHER STATES

In an attempt to defend our unusually high maternal death rate we naturally expect, and probably hope, to lay the blame on our large uneducated negro population. However, in referring again to Table 2 it is at once seen that neighboring states with a similar population, Florida excepted, maintain a much lower death rate than does Louisiana. Futhermore, as is shown in Table 3 a death rate of 93 is maintained, while those states in birth registration areas reporting a large number of colored births maintain a rate of 79. At the same time Louisiana shows a rate of 78 white deaths, while the states of similar population had a death rate of 60 for white women. The average colored puerperal death rate was 119 for Louisiana and 110 for the area, a gross mortality excess of 14. At the same time we had 18 and 19 more deaths per 10,000 live births among white and colored women respectively than the area at large reporting 1,500 or more colored births per annum. It is therefore apparent that the increased maternal death rate is due to a higher death rate among both white and colored women.

CAUSE AND PER CENT DISTRIBUTION OF PUERPERAL DISEASES OCCURRING IN LOUISIANA IN 1934

Having briefly reveiewed the relative surface mortality in Louisiana consider now the cause of the puerperal deaths and relative significance of the various titles in several groups that can be isolated by referring to the standard Louisiana death certificates. During the period studied (1934), 42,794 births were reported.[4] Of these 25,012 or 58.4 per cent were attended by physicians, and 17,728 or 41.4 per cent were attended by midwives. Only 54 or 0.2 per cent were attended by unlicensed individuals. It seems to be the custom of rural physicians to sign birth certificates for unlicensed midwives or "grannies". There were 2,109 stillbirths leaving 40,685 live births and giving a stillbirth rate of 4.8 per cent. The maternal death rate was 79 per 10,000 live births during the period studied.

Table 4

Cause of Death	Total	%	White	%	Colored	%
All Causes	337	—	150	—	187	—
Abortion with Sepsis	33	9.8	17	11.6	16	8.5
Abortion without Sepsis	4	1.1	0	—	4	2.1
Ectopic Gestation	14	4.15	10	6.6	4	2.1
Puerperal Hemorrhage	34	9.2	21	13.	13	6.9
Puerperal Sepsis	97	28.7	36	24.	61	32.6
Puerperal Albuminuria and Eclampsia	95	28.1	43	28.6	52	27.8
Other Toxemias	15	4.4	4	2.6	11	5.8
Embolus and Sudden Death other Accidents	35	10.3	17	5.	18	5.3
Other and Unspecified Conditions	3	.9	1	.6	2	1.6

Cause and percent distribution of deaths in white and colored women dying from puerperal causes; Louisiana 1934.

Study of Table 4 reveals that of the 337 deaths classified as puerperal by the method above described, 150 were white women and 187 were colored women. Of the 40,685 live births, 23,910 were white and 16,875 were colored. Thus, while 41.2 per cent of the live births were white, the white population made up 44.5 per cent of the deaths; and 58.8 per cent of the births were colored and negroes made up 55.5 per cent of the deaths. Therefore, relatively, the death rate was slightly higher among white women than colored women.

In the total series septicemia and albuminuria and eclampsia caused 97 and 95, or 28.78 and 28.18 per cent of the deaths respectively, each playing approximately an equally important role. If the septic abortions are combined with the 97 cases of sepsis occurring after the twenty-eighth week of gestation, then sepsis leads the list and is responsible for 38.8 per cent of all the deaths. Hemorrhage was responsible for 9.18 per cent of the deaths. Vomiting of pregnancy and ectopic gestation played about equal roles.

Abortion with sepsis, ectopic gestation, and hemorrhages were appreciably more frequent causes of death among white women. Albuminuria and eclampsia were about equally important in the two races. The deaths from sepsis and vomiting of pregnancy, particularly the former, were more common among the colored women. While no white woman died from abortion with hemorrhage, 2.1 per cent of the colored groups died from this cause.

MARITAL STATUS

Table 5 shows the per cent distribution of deaths among married and unmarried women. Only 35 were unmarried, and only one of these was white. Illegitimate pregnancy seemed to lead to a higher incidence of death from the two causes most readily amenable to prenatal care, e. g., albuminuria and eclampsia, and vomiting of pregnancy. The death rate was 96.6 per 10,000 total births in the normal unmarried. The series of unmarried women is, however, rather small for reliable deduction.

Table 5

Cause of Death	Married		Unmarried	
	No.	%	No.	%
Abortion with Sepsis	30	9.0	3	8.5
Abortion without Sepsis	3	.9	1	2.7
Ectopic Gestation	13	4.3	1	2.7
Puerperal Hemorrhage	34	11.2	0	
Puerperal Sepsis	87	28.8	10	27.1
Puerperal Albuminuria and Eclampsia	82	27.1	13	37.1
Other Toxemias	12	3.9	3	8.5
Embolus and Sudden Death	7	2.3	0	—
Other Accidents	32	10.5	3	8.5
Other and Unspecified Conditions	2	.6	1	2.7
Total	302		35	

URBAN AND RURAL DEATHS

Table 6 reveals the relative importance of the several causes of death in urban and rural women. One hundred and thirty seven of the deaths occurred among women residing in urban communities while 200 of the 337 deaths were rural women. Of the latter, 64 died in urban hospitals. Therefore, if the place of death instead of the place of residence was considered, the data would be practically reversed.

Table 6

Cause of Death	Urban						Rural					
	Total		White		Col.		Total		White		Col.	
	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%
Abortion with Sepsis	21	15.3	12	19.6	9	11.6	13	6.5	4	4.2	9	8.3
Abortion without Sepsis	3	2.1	0		3	3.8	1	.5	0		1	.9
Ectopic Gestation	7	5.1	5	8.1	2	2.5	7	3.5	5	5.7	2	1.9
Puerperal Hemorrhage	7	5.1	2	3.2	5	6.4	27	13.5	19	20.0	8	7.6
Puerperal Sepsis	37	27.0	10	16.3	27	35.0	60	30.0	30	34.5	39	28.8
Puerperal Albuminuria and Eclampsia	36	26.1	21	33.6	15	19.4	59	24.5	22	22.1	37	35.0
Other Toxemias	5	3.6	0		5	6.4	10	5.0	4	4.2	6	5.7
Embolus and Sudden Death	4	2.6	2	3.2	2	2.5	3	1.5	2	2.1	1	.9
Other Accidents	17	12.4	9	14.7	8	10.3	18	9.0	8	8.4	10	9.6
Other and Unspecified Conditions	1	.7	0		1	1.2	2	.5	1	1.0	1	.9
Total	137		61		77		200		95		105	

Cause and percent distribution of urban and rural puerperal deaths of white and colored women; Louisiana 1934.

Urban and rural refers to place of residence and not death. Towns of 10,000 or more counted as urban.

Abortions, ectopic gestation, eclampsia, embolism and sudden death, and accidents of labor were more important factors in urban than rural women. Abortions, and accidents of labor were the only appreciably more important factors in urban groups, however. The greater incidence of hemorrhagic deaths in rural women is noteworthy.

The urban white groups showed a higher incidence of death from abortions, ectopic pregnancy, puerperal albuminuria, embolism, and accidents of labor than the rural white group. The striking thing in the white group was the much greater incidence of abortion, toxemic and accidental deaths in the urban group, and the greater liability of the rural group to succumb to hemorrhage and sepsis.

The only striking difference in the colored group is the higher incidence of septic abortion and puerperal septicemia death in the urban group, and the greater toxemic death rate in the rural group. White women played the leading role in abortion, ectopic gestation, eclampsia, embolic and accidental deaths in the urban group. In the rural group they had a higher incidence of deaths from "ectopics", sepsis, hemorrhage and embolism than the colored women.

HOSPITALIZATION

One hundred and sixty-seven of the 337 deaths occurred in homes, and 170 occurred in hospitals. It may be noted that the relative number of white and colored home and hospital deaths were without appreciable significance. Of course, no information was available to determine which patients had planned hospitalization and which ones were hospitalized after acquiring the complication in the home that lead to their hospital deaths. Ninety-three of the 170 hospital deaths occurred in the State Charity Hospitals.

Table 7

Cause of Death	Home						Hospital					
	Total		White		Col.		Total		White		Col.	
	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%
Abortion with Sepsis	13	7.0	3	.4	10	10.7	21	12.3	15	18.3	6	6.8
Abortion without Sepsis	2	1.1	0	—	2	2.1	2	1.1	0	—	2	2.2
Ectopic Gestation	4	2.4	3	.4	1	1.0	10	5.8	7	8.6	3	3.4
Puerperal Hemorrhage	24	14.3	15	20.0	9	9.6	10	5.8	6	7.4	4	4.5
Puerperal Sepsis	45	26.9	24	32.0	21	22.5	52	30.0	14	17.2	38	43.0
Puerperal Albuminuria and Eclampsia	47	28.1	18	24.0	30	32.2	47	27.6	25	30.8	22	25.0
Other Toxemias	88	4.7	4	5.3	4	4.3	7	4.1	0	—	7	7.9
Embolus and Sudden Death	3	1.7	2	2.6	1	1.0	4	2.3	3	3.7	1	1.1
Other Accidents	19	11.3	6	8.0	13	13.9	16	9.4	10	12.3	5	5.6
Other and Unspecified Conditions	2	1.1	0	—	2	2.1	1	.5	1	1.2	0	—
Total	167		75		93		170		81		88	

Cause and percent distribution of home and hospital puerperal deaths of white and colored women in Louisiana; 1934.

Table 7 seems to reveal that the abortion death rate was appreciably higher, 5.8 per cent, in the hospital group. Sepsis caused 3.1 per cent more of the hospital than the home deaths. The difference in home and hospital toxemic deaths was negligible. The incidence of accidental deaths was slightly greater in homes than hospitals.

The racial difference in distribution of causes of death in homes and hospitals was more striking than in the total series. In table 7 it is seen that 18.3 per cent of the white women dying in hospitals succumbed to septic abortions, while 0.4 per cent of the home deaths (white) were from this cause. Puerperal hemorrhage caused 20 per cent of the home deaths (white) and only 7.4 per cent of the hospital deaths (white). The per cent of septic deaths was nearly twice as great in the home cases as the hospital cases (white).

Hospitals had a 6.8 per cent higher distribution of albuminuria and eclampsia deaths in the white group. The vomiting death incidence in white women was confined entirely to the home group, making up 5.3 per cent of all the home white series. The relatively higher incidence of accidental deaths (white) in hospitals is noteworthy.

Among the colored women the relative importance of septic abortions in the homes and hospitals is somewhat reversed from the white groups. Hemorrhage seems to make up a greater per cent of the colored as well as the white home deaths, though the difference is not quite as striking in the negro as in the white groups. That 43 per cent of the colored women in the hospital series died of sepsis while only 22.5 per cent of the colored home group were septic deaths is very, very impressive. The greater per cent distribution of colored deaths from albuminuria and eclampsia and accidents of labor in the home group is apparent. The latter difference, 8.3 per cent, is quite appreciable.

DISCUSSION

The apparent downward trend of puerperal death rate in Louisiana is somewhat encouraging. Perhaps the laity is becoming more sensitive to the importance of maternal care. Maybe physicians are giving a better quality of maternal care. Markedly improved roads which facilitate availability of physicians are, no doubt, leading to a lower death rate.

Louisiana cannot feel secure in her obstetrical status, however, because she still maintains next to the highest death rate in the United States birth registration area* and an appreciably higher puerperal death rate than other states of similiar population.

That puerperal disease is Louisiana women's most devastating enemy in the child-bearing age is astounding, I am sure not only to the laymen but to practicing physicians and public

* Now includes entire 48 states, Louisiana was added in 1927.

health officers as well. This fact alone makes it imperative that the medical profession lends its energy in overcoming whatever social and economic ills that exist to maintain this state of affairs.

The relative maternal mortality rating gives no ground to defend the situation on the basis of a high negro population. There is both a higher colored and white death rate than in other states. The principal factors causing deaths, namely: sepsis, toxemias, abortions and hemorrhage, are in keeping with the Children's Bureau Survey[5]. However, while the Children's Bureau Survey found the colored death rate to be nearly twice as high as the white death rate[6], Louisiana white women had a slightly higher rate for the 1934 period than did the colored women.

No accurate information was available concerning the distribution of deaths on the various trimesters of pregnancy. The quality and quantity of prenatal care received by the 337 women was likewise indeterminate. On nine, or 2.7 per cent of the certificates such comments as, "viewed body", or, "moribund when seen" was noted. For these deaths, certainly the physician could not be held responsible, for he was not consulted in time. Gross ignorance, carelessness, and economic adversity are responsible factors.

The higher incidence of septic abortions among city dwellers needs closer scrutiny. The ease of securing criminal abortions in cities is probably a factor that needs elimination. Here it may be mentioned that death certificates signed as "criminal abortion" are filed as homicide in the International List. It follows, therefore, that not a few of these deaths are lost for the present study and the abortion situation is probably somewhat worse than is indicated.

Ectopic gestation made up 4 per cent of all maternal deaths. Both the total number and relative distribution in urban and rural areas, in this series, is in keeping with the Children's Bureau finding[7]. It is fair to assume that the relatively high incidence of urban deaths from ectopic pregnancy is due, at least in part, to a tendency of rural physicians to overlook the conditions somewhat more frequently than urban physicians: A physician makes a surgical diagnosis most readily when an operating room is available. The higher incidence of "ectopic" deaths among white women is probably due more to a higher frequency of diagnosis than actual occurrence.

The prevalence of rural deaths from hemorrhage needs attention. Perhaps it would be good for rural physicians to equip themselves better to control hemorrhage and to treat shock. Pituitrin, ergot, sterile packs and infusion fluids, of which gum acacia is particularly efficacious, are not difficult to carry. I have heard rural physicians state that sepsis does not occur in their practice. Death certificates do not verify this statement. Urban women have a greater opportunity to avail themselves of prenatal care than rural women. Yet rural physicians lose fewer patients from eclampsia than urban doctors. Is it possible that urban physicians are giving a poorer quality of prenatal care or are they treating their patients with eclampsia less wisely? It seems possible that rural physicians do not treat their vomiting patients as early or as enthusiastically as urban physicians. It is probable, however, that the rural doctor simply has less facilities for controlling severe vomiting than the urban physician.

A satisfactory analysis of the very miscellaneous group of "other accidents" is very difficult. Both urban white and colored women seem more likely to fall into this group. This cannot be attributed entirely to the radical operative procedures in hospitals, because more home than hospital cases fell into this category, at least they were more frequently assigned to this group. Two cases in this group were placenta previa treated by accouchment force and forceps. Both were handled by the same rural physician. Probably rupture of the uterus kills more women than is suspected.

The distribution of all home and hospital deliveries was not ascertained in this study. Likewise, the number of home cases that were transferred to hospitals after incurring the complications that lead to their death could not be determined. Very frequently women who are delivered in hospitals have been examined vaginally, or have even had attempts at delivery

before admission. For these reasons, even if the number of live births occurring in hospitals were obtained, the relative home and hospital mortality rate would not give an index of the relative safety of the two places for delivery. In the Children's Bureau Survey more than half of the deaths reported had been hospitalized at some time during their final illness. However, only a little more than half of these cases were delivered or aborted in hospitals[8]. It is natural to suspect that most of the hospital cases were urban women. Nearly half of the cases in this series died in hospitals. It is probably quite fair to consider a large part of the deaths in hospitals to be transferred cases from homes. The tendency towards a radical treatment in hospitals (curettage) is a possible explanation for the relatively higher abortion death rate.

That ectopic gestation death rates in hospitals, being nearly twice as great as in homes where treatment facilities are infinitely inferior, is paradoxical. Here again transferred cases have to be considered, also the diagnosis, as mentioned before, is less likely to be made on home cases. Freer use of shock measures combined with earlier diagnosis and surgery should lower the death rate from extra-uterine pregnancy.

The septic problem in hospitals seem to be a great one. This is particularly true of the negro. Poor isolation facilities plays an easily controllable role here. If hospitals would familiarize themselves with the standard of the American College of Surgeons for hospitals taking obstetrical patients[9], and apply it, especially to colored wards, this situation could and would be improved.

Since the majority of hospital patients are urban women with easily available prenatal care, it follows that hospitals should present a much lower per cent distribution of toxemic deaths. Such did not hold true in this series. Negroes only seemed to gain protection from toxemia deaths in hospitals. Poor internatal care will undo the benefit derived from even the best prenatal care. The slightly higher incidence of accidental deaths in homes is probably without significance except that, since this group covers such a "multitude of sins" and the diagnostic facilities in hospitals are superior, hospital deaths should, and do less frequently, fall in this group.

There are many facts in this study that extend beyond the scope of this presentation. There is much that needs to be learned which requires a more detailed study than is here presented; such as quality of care received by each individual case, quality of hospital facilities available for obstetrical cases, and incidence and type of operative procedure preceding death.

Since Louisiana apparently maintains nearly the highest maternal mortality rate in the birth registration area it is imperative that an attempt be made to localize the source of blame for these deaths. It must rest in a combination of four places, namely:

1. Lack of appreciation of the need of prenatal, natal, and postnatal care by the laity.
2. Errors of judgment of the medical profession.
3. Failure of communities, hospitals, organized medicine, and allied groups fully to appreciate their responsibilities and opportunities.
4. Lack of the layman's appreciation of danger signals in pregnancy, and the danger of abortions of all types.

CONCLUSIONS

It is difficult to draw conclusions from information that is presented with only sufficient accuracy as to convey mere ideas. A few facts seem rather certain, however:

First, in Louisiana there is a very high puerperal death rate that is not confined to the negro population. Puerperal diseases occupy a very prominent place in producing death among women of child-bearing age.

There is a need for detailed and accurate reporting of maternal death in order that statistics will be more valuable. We need to concentrate our attention particularly on the question of preventing and controlling sepsis, toxemias, and hemorrhage.

Organized medicine must play the leading part in improvement of maternal welfare. Facilities for a complete, detailed survey of our maternal mortality, as has been done by the Children's Bureau, the City of Philadelphia[10], and the State of Georgia[10] are very appropriate.

Hospitals play an important part in our mortality. They should be requested to provide for the minimum standard for maternity divisions as prescribed by the American College of Surgeons.

Various subdivisions of the State Medical Society should assume a definite cooperative plan aimed at educating the laity of the necessity of adequate prenatal, natal and postnatal care.* Furthermore, the resources of the several communities should be organized so that all mothers will be provided with means of acquiring the quantity and quality of care that they justly deserve.

Endless collections of statistics leads nowhere. We, as physicians, must manifest interest, action and harmonious cooperation to make maternity safer in Louisiana.

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DISCUSSION

Dr. E. L. King (New Orleans): In this day of preventive medicine it seems there is no field that is more capable of giving us good results than this field of maternal welfare. Dr. Mays' figures need very little comment. The fact that we have the rather dubious distinction, you may say, of being down at the bottom of the list in the states of the United States is not a source of great gratification to us.

I noticed that approximately 15 per cent of all women, both white and colored, in the child-bearing period die from puerperal causes. As he brought out, the chief cases are sepsis, hemorrhage and toxemia. Those three groups are responsible in the United States for about four or five thousand deaths each per year, and we all know, of course, that those three things can be prevented in great measure.

It is well to emphasize also the fact, which he brought out, that we cannot take refuge in the supposed idea that the higher rate in Louisiana and other Southern states is due to the colored population. It is about the same, so we are just about as bad off, as far as the whites are concerned, as the colored.

We can talk all day on this subject, but responsibility on the two main points to be emphasized can be placed on the medical profession. One is that our patients need better prenatal care. Proper prenatal care will obviate a great many of these deaths. Next, they need better obstetrical care, which is a function of the profession and of course is a function of the schools in training doctors.

The lack of proper prenatal care is due in considerable part to the people themselves. That is one thing we have to get over to the laity, and that is one of the objects of the Maternal Welfare Committee appointed last year, and which we hope will continue to function.

The other problem is to get over to the doctors in practice the adoption of better obstetrical care, and that is tied up with the better observation of patients before they go into labor and a more conservative attitude during labor. It has been pretty well proved that the higher the operative rate in any institution or locality, the higher the maternal death rate. So our job, primarily, is to let the women in normal cases deliver themselves as much as possible and not interfere unnecessarily, and interfere only on proper indications and only in the proper way.

That is the main thing that has been brought out in this paper. If we can get the doctrine of prenatal care over to the people and have them come to the doctor or the clinic, no matter how well they are, we will have taken a step forward. I personally insist, in my private work and in my hospital work, that patients must come regularly, no matter how well they are or how well they feel. Secondly, when they do come, let us give them adequate prenatal care.

Finally, let us give them good obstetrical care when they do go into labor.

Dr. Walter E. Levy (New Orleans): I want to disagree with Dr. Mays on one point that statistical studies are uninteresting. I think they are very interesting, because I think they are the only way you can prove your point. Just to make odd statements and say this, that, and the other things are so, and not be able to back them up is a disgrace in medicine. I think Dr. Mays' paper is a point well taken when you can prove your point.

How we are going to do better by our women, I do not know. For the present, I think it resolves itself into better education of the undergraduate.

* For a definition of adequate, see Standards of Prenatal Care. United States Children's Bureau, Publication No. 153, Washington 1925).

There are two articles in the A. M. A. Journal, by Kosmack and Adair pleading for that. Obstetrics is more or less a stepchild in the undergraduate school, and anybody who gets out with a diploma seems to think he has a right to take a pot-shot at it.

To me, it is a very definite specialty and some of the worst wrecks we see are those attempted by doctors who do not realize the seriousness of the situation. Suffice it to say, about 95 per cent of women will deliver themselves if left sufficiently alone. The other 5 per cent get into trouble. On the other hand, too much abnormal obstetrics is being done by some men because they are attached to a hospital and have a forceps in their bag. The English term is meddlesome midwifery.

One of the points we have to make is better teaching, and to leave things alone.

Prenatal care is the key point, I believe, for reducing maternal mortality. As brought out by Dr. Mays, eclampsia is a preventable disease when these women are seen in time and they are treated properly. I do not believe, in the last three or four years, we have seen an eclamptic that has had proper prenatal care. We may pick up an ambulance case. I think Dr. King takes a good licking out there on the cases sent in. Furthermore, in prenatal care you can realize contractions of the pelvis ahead of time and institute the proper treatment. I agree with Dr. Mays that it is begging the question to say that our maternal mortality is higher in the South due to the colored race.

Dr. T. B. Sellers, (New Orleans): Several years ago a movement was started by a group of obstetricians and gynecologists to establish a National Maternal Welfare Committee. This committee is now functioning and its activity has been extended to every state in the Union, Dr. E. L. King being selected as chairman of the Louisiana State Committee. He and his committee have been busy for the past year trying to sponsor the formation of sub-committees in the respective parishes with a view to bringing before the profession the need for better obstetrics and to promoting the formation of lay as well as professional committees on maternal welfare.

Inasmuch as about 90 or 95 per cent of all physicians of the state do obstetrics, Dr. Mays' paper should be a challenge to the doctors of Louisiana to overcome the deplorable condition which now exists.

Dr. Levy mentioned the importance of better training for students. I agree that this is timely, but we must not overlook the fact that over two thousand practicing physicians in Louisiana will handle the majority of obstetrics for the next ten or fifteen years; therefore, their interest and cooperation must be enlisted before we can hope to overcome the present high morbidity and mortality.

Dr. Rhett G. McMahon (Baton Rouge): I wonder if it is known that 54 per cent of the women dying yearly from maternal causes have not had even one prenatal examination by a physician. There is the crux of the thing. We do not have a chance to practice what we know on 54 per cent of them.

The thing, as brought out, is the education of the public. This is going to be undertaken by the Social Security Bill. Just a word of warning. If we are not careful, the medical profession will lose another field of preventive medicine. We have already lost one field, immunization of communicable diseases. If we do not look out for ourselves, we are going to lose another field, because the lay organizations, the public health boards and other organizations are ready to spring in and take advantage of the provisions of this Social Security Bill.

This is a question of education, it is true, but this education must be supervised by the medical profession. Who is best qualified to take care of it? The doctor, of course, the man who is called when they get into trouble. Therefore, we should look to our own interests and see that this field of preventive medicine is not taken away from us.

It is up to the doctor in the country to carry this education to these people and see that the 54 per cent who have not had even one prenatal examination, where a doctor has never put a finger on them or laid his eyes on them, are educated to adequate prenatal care and take advantage of the advancement in obstetrics. Our obstetrical technics have advanced with other fields of medicine. Our understanding of the toxemias, our treatment of emergencies and hemorrhages have all kept pace with the times, and not too much of the burden of this high mortality should be placed at the doctor's feet.

Dr. C. R. Mays (Shreveport): I should like particularly to thank Dr. Kibbe, of New Orleans, for furnishing the Death Certificates, and Dr. Sandige, of Shreveport for helping in the preparation of the charts.

One point I omitted when I presented the charts showing the hospital death rate, the most astounding figure in the whole group, was that 43 per cent of the colored women who die in hospitals die from sepsis. The relief of congestion in the obstetrical wards in the State would lower this a great deal.

Dr. Levy makes a plea for the education of physicians. That has been attempted, but it is generally found that the physicians who do not need the education attend the lecture courses, and those who do need it do not come.

Dr. McMahon's comment that 54 per cent of patients dying from puerperal causes never come for examination or have prenatal care is in keeping with the Children's Bureau Survey.

I do not think we should attempt to fix the blame for individual deaths without a detailed survey. We really are not entitled to theorize as to whether the patient, doctor or midwife is at fault. All are probably responsible for avoidable deaths at one time or another.

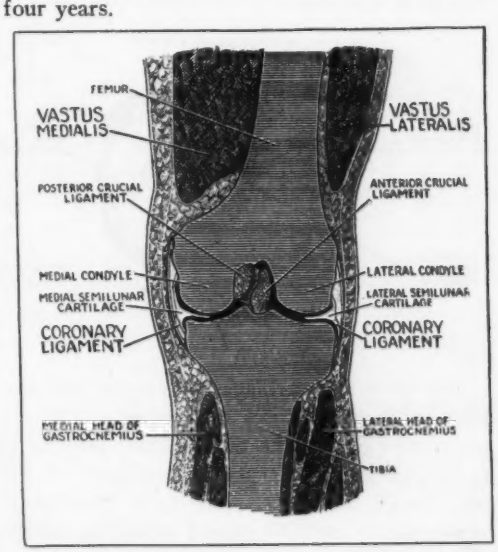
THE SEMILUNAR CARTILAGE AND THE FOOTBALL KNEE

H. THEODORE SIMON, M. D.†

My first interest in semilunar cartilage injuries dates back to the World War, while attached to the Orthopedic Division at Walter Reed General Hospital in Washington, D. C. This hospital's location, near one of the largest artillery camps, made it the concentration point of a large number of knee injuries. Operative removals of the injured cartilages were done in a large number of cases with most unsatisfactory results. These bad results were probably due in part to lax or inexperienced operative preparation and technic and in part to the type of patient treated. Infections of knee joints were much too common following knee operations and even when convalescence was uneventful, the operated soldier had little desire to cooperate sufficiently so as to rehabilitate himself for full line duty. Finally, an order from the Surgeon General's office prohibited the routine removal of these cartilages and in part established a disinterest in this type of surgery for a period of years.

In the past few days, an ex-soldier was observed who had injured his knee in 1918 and who had the medial cartilage removed two years later. He was still wearing a very formidable knee and leg brace, his muscles were thoroughly atrophied, his knee capsule was relaxed and even knee motion was limited. The operation had been uneventful, no complications had occurred and he should have been thoroughly rehabilitated and discharged a few months after operation. Instead, he is today a dependent of the Government wholly because of his lack of desire to cooperate.

It was not until 1932 that my interest was revived in semilunar cartilage injuries. A change in the coaching personnel of football was made at the Louisiana State University. Following a check of the football squad, the new trainer, Major Frank Wandle, who had occupied a similar position at West Point Military Academy, requested examination of the available football material. A careful survey was made and much to my surprise, eleven semilunar cartilage injuries were discovered. Seven of these cases were later operated upon and their diagnosis confirmed. Cooperating with Major Wandle, I instituted a form of post-operative rehabilitation which has proved most satisfactory. The success of this rehabilitation plan can no better be described than by presentation of the report of excellent results obtained in 33 athletes from whom 35 semilunar cartilages have been removed in the past four years.



To understand semilunar cartilage injuries, is may be wise to recall the anatomy of the knee joint. The knee joint is the largest joint of the human skeleton. It is a trocho-ginglymus or compound joint between the two longest bones, the femur and the tibia with the largest sesamoid bone, the patella, incorporated in the tendon of the extensor muscle of the leg in front of the joint capsule. Its location makes it easily accessible to stress and strain and the length of its forming bones subjects it

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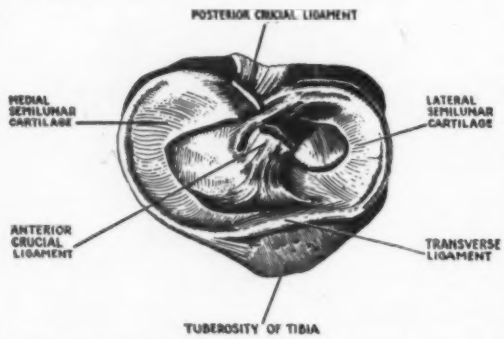
***Read before the Orleans Parish Medical Society, May 25, 1936.**

†From the Department of Orthopedic Surgery of Louisiana State University Medical Center, New Orleans, La.

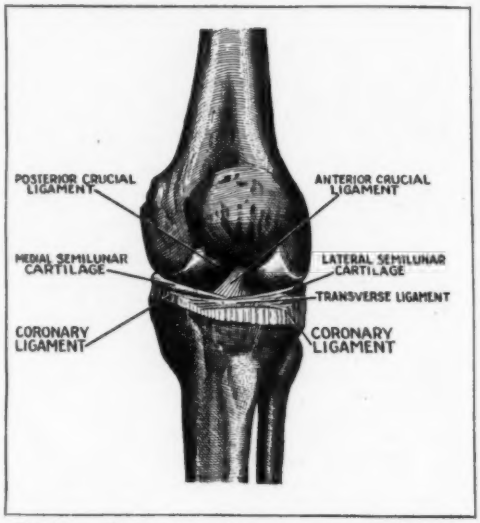
to tremendous leverage. Some anatomists find it convenient to consider the knee joint as a group of three joints: the one between the patella and femur, the second between medial condyle and tibia and the third between the lateral condyle and tibia. It is surrounded by a capsule and supported by ligaments both within and without the capsule.

The extra-articular ligaments are the following: the posterior, the internal lateral and the external lateral ligament. The external lateral ligament is a distinct formidable ligament while the internal lateral ligament is composed of some longitudinal fibres of the capsule and is in no sense strong.

The anterior and posterior crucial ligaments within the capsule are two broad thick bands crossing each other at the inter-condylar notch, joining the tibia to the femur and acting to prevent slipping of the tibia forward on the femur or vice versa.



The semilunar cartilages or menisci are two fibro-cartilaginous discs each lying on top of the tuberosities of the tibia. Their purpose is to deepen the space for movement of the condyles of the femur. The lateral cartilage is almost round or "O" shaped while the medial cartilage is semi-circular or "C" shaped. These cartilages have their thin edges free to the center of the joint and their thick outer borders are attached to the joint capsule. The terminal ends of both cartilages, known also as cornua or horns, are attached independently and rather firmly. The anterior horn of the medial cartilage is attached to the roughened surface near the anterior border of the tibia, its posterior cornu is attached behind the tibial facet of the spine of the tibia. The anterior cornu of the lateral cartilage is attached to the fibular facet of the spine of the tibia and its posterior horn joins the posterior crucial ligament. From this description, it is evident that the cornua of the lateral cartilage are almost in contact with each other while those of the medial cartilage are widely separated.



Both cartilages have ligamentous attachments; the anterior transverse ligament joins both in front, while the coronary ligaments are the inferior portions of the capsule joining the periphery of the semilunar cartilages to the tibia. The coronary ligament of the lateral cartilage is nearly twice the length of the same ligament of the medial cartilage. The length of this ligament and the closeness of the cornua, allow the lateral cartilage to move rather freely on the tibia. On the other hand, the medial cartilage is fairly firmly fixed. This point is of extreme importance in considering the mechanism of meniscus injury.

It must be remembered that in addition to ligamentous support, the muscular control of a joint is of extreme importance. Bristow[1] is one of the few authors who has stressed the importance of muscle control in the knee joint and has emphasized that the muscle is the first line of defense to any damaging force which might be applied to this joint. The second line of defense is the ligaments which have been described. The weaker the muscle, the easier the defect of the first line of defense; this re-

sults in traumatism being borne by ligaments and cartilages. In the case of the knee joint, the tone of the quadriceps extensor group is of paramount importance and in my opinion is the deciding factor between few and many knee casualties in football. A quadriceps group which is properly toned not only permits of better joint function but actually prevents strain and damage to the knee joint. The vastus medius and lateralis muscles have some attachment to the capsule of the joint and these muscles, if of proper quality, keep the capsule and lateral ligements taut and supportive. Wasted lateral muscles will allow of marked relaxation of the capsule and lateral ligaments and will favor internal derangements of the knee joint. Muscle influence can be illustrated by recalling the finding of the 11 semilunar cartilage injuries at one time in a single football squad. In my opinion, this great number of injuries had been caused by utter disregard for muscle training prior to actual contact in football. The first day of football practice should not be devoted to the issuing of football uniforms and scrimmage should not follow the immediate donning of these uniforms.

Landry[2], in his recent article on football injuries, pointed out a conclusion of Eastwood who emphasizes the lessened number of football injuries when four weeks of training preceded actual scrimmage and playing.

As before stated, the knee joint is not a simple hinged joint, but is a compound joint. The lack of symmetry of the external and internal condyles of the femur demands that rotary deviations take place at the beginning of flexion and at the end of extension of the knee. This rotary departure from a true hinged joint, although slight, is quoted by Kulowski[3] as probably the chief cause of internal derangements of the knee joint and it is undoubtedly the cause of most semilunar cartilage injuries.

Rotation in the knee occurs in the position of flexion. In extension, the knee is sufficiently locked to prevent rotary motion. Rotation takes place in that part of the joint between the tibia and the internal condyle and that part of the joint between the tibia and the external condyle, depending on the direction of movement. As the condyle rotates on the tibia, the semilunar cartilage moves away and it normally escapes impingement. The lateral cartilage has been shown to be fairly freely movable and because of this movement it escapes even forced rotation. The medial cartilage is more firmly fixed and its possibility of escape is lessened. A football player tackled or blocked laterally, at the moment his foot is fixed to the ground, with his knee flexed, receives a trauma which causes sudden and excessive rotary knee motion. This abnormal motion is the force which impinges or crushes the meniscus and thereby detaches or fractures it. This results in a large number of medial cartilage injuries compared to those of the lateral cartilage as will be borne out in the statistics of these 33 athletes.

The history of the primary injury is one of traumatism to the knee, with the knee in the flexed position. There then ensues a sharp pain with a sensation of catch or slip in either the lateral or medial portion of the knee joint. The activity of the player is immediately stopped, and, as a rule, he falls to the ground because of loss of control of the limb and the associated pain. If the cartilage has been torn and displaced, there is a sense of locking and sometimes an inability of the patient to extend his own knee. Passive extension is then necessary by a second person. If the cartilage remains displaced and incarcerated, the knee cannot be completely extended without the replacement of the torn cartilage. Sometimes, immediate swelling occurs and is caused by hemorrhage; latent swelling usually occurs in a few hours and is the result of synovial fluid increase.

It is not the purpose of this paper to describe conservative treatment of the initial cartilage injury. The main purpose is to present a group of cases which have had repeated recurrences of symptoms following the primary injury. These secondary recurrences have incapacitated these athletes and have made them useless for competition and in fact many would have been handicapped in civilian life. Because of the chronicity of the condition, the method of treatment can be only one of operative removal. The diagnosis in these cases was made by a careful history and by careful clinical and radiographic examination. For the past

eighteen months I have used a newer method of diagnosis which I originated with the aid of my associates.[4] The method consists of standardization of air pressure in the knee joint by air injection to 160 mms. mercury pressure. Radiographs taken immediately after injection lend to excellent interpretations and have made it possible to prognosticate the actual type of damage and the actual cartilage or cartilages injured. These interpretations have been proved at operation in 16 cases.

TECHNIC OF OPERATION

Extreme care is exercised in the preoperative preparation of the limb. Forty-eight hour skin preparation is employed whenever possible. this means the shaving, scrubbing, alcohol washing and sterile bandaging of the knee area forty-eight hours and again twenty-four hours prior to operation.

A tourniquet is employed in all cases. It is essential that the tourniquet be efficiently applied.

A lateral skin incision is used. The incision is made three inches in length, one finger's breadth from the patella and extending across the knee joint. The incision is made to the lateral or medial side depending on the involved cartilage. Careful surgical asepsis with careful observation of assistants' and nurses' movements have been religiously followed. All blood vessels when seen are caught and ligated. Towels cover the skin edges. The incision is carried through capsule and synovial membrane and the joint is exposed. The knee is then flexed to a right angle by breaking the operation table; careful retraction permits of thorough observation and positive diagnosis. The cartilage is removed in the routine manner taking away as much of the cartilage as possible. In some instances, where there has been posterior peripheral detachment, the entire cartilage has been removed. By retraction of the alar ligament, it is often possible to observe the opposite cartilage. The synovial memrance is then closed with a running suture of plain No. 1 catgut, the capsule with a running suture of chromic No. 2 catgut and the skin incision is sutured with interrupted dermal "U" sutures. A dressing is applied and a 4 inch ace bandage applied in an anterior figure of eight dressing gives excellent compression. The ace bandage is the only fixation used.

The first two or three post-operative days are uncomfortable and may require morphine or similar hypnotics. A back rest can be employed on the third or fourth day and the patient is usually allowed in a rolling chair with the operated limb elevated on the fifth day. The sutures are removed on the eighth day and the patient is allowed to walk, perferably with a cane for support. Crutches are discouraged. The ace bandage is used constantly.

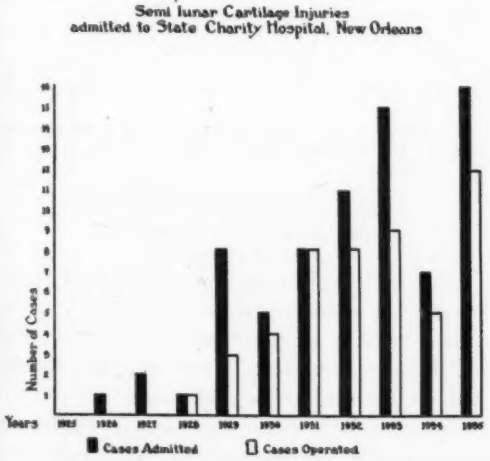
Following operation there is occasionally hemorrhage or excessive synovial fluid accummulation. Too much joint distention calls for immediate aspiration.

With the athlete leaving the hospital comes the question of rehabilitation. The authors of most texts on orthopedics state that no follow-up treatment is necessary and that the patient can satisfactorily work out his own salvation. This, in the opinion of the writer, is decidedly erroneous and should never be followed when dealing with patients who are to be rehabilitated to rapid efficiency and physical condition which will allow athletic competition.

With the removal of the sutures, the patient is returned to the University. He is encouraged to walk as much as is comfortable and it is insisted that he flex his knee in walking. It is interesting to note that knee motion is painless in a very short time and if encouraged, the patient is able fully to flex his knee within a period of two weeks after operation. Daily infra-red baking and massage of the thigh and and calf muscles is ordered. Sinusoidal stimulation of muscles is of advantage and where there has been marked atrophy of the quadricep extensor group this type of electric stimulation is instituted. Fourteen days after operation, the patient is given daily diathermia treatment to the knee for twenty minutes and is then compelled to peddle a stationary bicycle. The time on the stationary bicycle is daily increased and as his musculature develops, the friction apparatus of the bicycle is tightened so as to simulate peddling up an incline. Within a

week it is usually possible to have the patient doing the equivalent of fifteen or more miles daily on the bicycle. The cane is discarded as soon as the patient gains confidence and the ace bandage is likewise dispensed with. With still further improvement of the muscles, the patient is encouraged to climb steps and inclines. The stadium at the football field is an excellent place for this type of exercise. At the end of the sixth week, the majority of the patients have been fully rehabilitated and are in a position to enter light competition. It has not been my practice to encourage very active football at this time and most athletes were operated at times that would allow several months of training before active practice and competition.

At the Charity Hospital of New Orleans, Louisiana, in ten years (1925 through 1935) 74 semilunar cartilage injuries have been admitted and 50 of these cases came to operation. The table of statistics relative to these admissions will show that in the past few years more interest has developed in this type of injury, more diagnoses have been made and a larger number of cases have been operated. In the four months of this year there have been 12 admissions and eight operations.



It is desired to report 33 athletes from whom 35 semilunar cartilages have been removed in the past four years. Twenty-two of these cases have been treated at Hotel Dieu and 13 at Charity Hospital. Thirty of the 33 patients presented injuries to the medial semilunar cartilages alone, one patient an injury to his lateral semilunar cortilage and two patients injuries to both medial and lateral cartilages of the same knee. Twenty-four of the cartilage injuries occurred in the left knee and 11 in the right knee. Tables of statistics on cartilage injuries in civilian life show about an equal number of left and right knee injuries with a slight preponderence of the left knees in some instances. Since the ratio in this series is more than two to one, it is apparent that certain manoeuvres or contacts in football favor left knee injuries and persons familiar with the elementary principles of football, have described to me the relative frequency of blocking and tackling to the left side. Most players were ends, backfield men and centers. Only one tackle was found in this series, again showing that blocking and tackling of the offensive player is highly responsible for the injury.

The pathology found in these cartilages is as follows:

MEDIAL MENISCI INJURIES

	No. of Cartilages	Right Knee	Left Knee
1. Anterior detachments	16	6	10
2. Longitudinal splits	3	2	1
3. Detachments at periphery	4	0	4
4. Bucket handle tears	5	2	3
5. Transverse fractures	2	0	2
6. Hypermobile cartilages	2	1	1
Total	32	11	21

LATERAL MENISCI INJURIES

	No. of Cartilages	Right Knee	Left Knee
1. Anterior detachments	2	0	2
2. Longitudinal splits	1	0	1
Total	3	0	3
Grand Total	35	11	24

Of the 33 knees operated on, there was no evidence of knee infection or anything which resembled an infection. In eight of the cases, distention of the joint by blood and synovial fluid required knee aspiration.

All skin incisions healed by primary union with the exception of one case in which both cartilages were removed, he developed a large

hematoma of the subcutaneous tissues; this required removing several skin sutures and secondary suture. Smaller hematomas occurred in several additional cases but did not interfere with healing of the incision.

One patient developed an acute attack of his chronic malarial infection and was a source of worry until his blood was reported positive for malaria. One patient developed a cystitis from repeated catheterization of the bladder; two patients who were manipulated by inexperienced persons in an attempt to obtain knee extension in an incarcerated cartilage, presented evidence of erosion of the articular cartilage of the medial condyle from traumatism produced by the manipulation. One patient operated before by another surgeon had a transverse fracture of the remaining posterior half of his cartilage. One patient with a medial meniscus injury presented radiographic evidence of Pellegrini-Stieda's disease, which is calcium deposition in the lateral ligaments. Eighteen of the 33 patients were from the Louisiana State University, two were from Loyola University, one from the University of Oklahoma and the remaining 12 from High Schools and secondary colleges in the State of Louisiana.

Of the 18 patients from the Louisiana State University, seven were from the original 11 knee injuries found, eight had sustained the initial injury in high school football and only three originated at the University in the course of four years. This again emphasizes the benefits of scientific training and muscle conditioning and proves that a football coach's first lieutenant is his skilled trainer.

All patients presented normal knee function and returned to their athletic activities with the exception of one who presented the evidence of a Pellegrini-Stieda's disease, and who seemed to dread contact football. One player operated on for a lateral cartilage, after months of competition, developed a medial cartilage injury which now needs surgery; at the time of operation, his medial cartilage was noted as normal. A third player (one of the two with the condylar cartilage eroded) entered professional baseball and was active for a period of two years; he recently has sustained a lateral ligament injury which is clearing and he is now doing light work.

CONCLUSIONS

1. Sufficient evidence has been presented to justify the conclusion that suitable preliminary muscle training will minimize the possibilites of semilunar cartilage injuries.

2. While a semilunar cartilage removal is not the minor operation reported in the sports columns, yet this operation is comparatively safe if precautions and diligence are used.

3. A group of 33 athletes have been operated, 35 menisci have been removed and normal knee functions were obtained in all cases.

4. Recurring knee disabilities from semilunar cartilage pathology requires operative removal for return to athletic activities.

5. In civilian life, similar knee disabilities are also a serious handicap and often jeopardize the life and limb of the person by a knee lock at a precarious moment.

6. Menisci removals alone do not make good football players; still, it has been a keen sense of satisfaction to me to know that I have rehabilitated a number of players who have made football history in the South.

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CONCERING THE BIOPSY*

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Prognosis and intelligent treatment of cancer require an exact diagnosis. Probably in no other specialty of medicine is the correct plan of therapy as uniformly and urgently dependent on the diagnosis as in cancer. To determine whether a tumor is benign or malignant, carcinoma or sarcoma, usually is not sufficient. The diagnosis must identify the process as a particular neoplastic disease, a definite clinical

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*Read before the Louisiana State Medical Society, Lake Charles, April 27-29, 1936.

entity. The attitude that cancer is a single disease, much the same under all circumstances, is partly responsible for the lack of preparation with which the average physician approaches the diagnosis of cancer. Several years ago Ewing proposed that there are as many separate clinical entities of a neoplastic nature with fairly characteristic natural histories and clinical courses as there are disease entities due to inflammation. The adoption of such a concept is necessary for an intelligent approach to both the diagnostic and the therapeutic problems in the neoplastic field.

Of what does the diagnosis of cancer consist, and by what means is it accomplished? Ewing says: "A diagnosis may be said to have been obtained when the clinician has been placed in command of data which will enable him to understand the origin, cause and prognosis of the case in hand. This information must include the results of the physical examination of the patient, roentgenologic study, and of histologic study, which reveal the structure of the tumor, the origin of the tumor, its grade of malignancy, and the grade of radiosensitivity. Without all these data the diagnosis must be regarded as incomplete."

Such a complete body of diagnostic information is often lacking, notwithstanding the fact that the welfare of both the patient and clinician may suffer in the departure from this ideal.

A clinical diagnosis based on the history and physical examination of the patient in early cancer, in which the prospect of cure is greatest lacks certainty in the majority of cases and requires histologic confirmation. Cases in which the clinical diagnosis is incontestable are often candidates for palliative treatment only. Moreover, the true condition of precancerous and borderline lesions, in which adequate treatment for these might prove inadequate in case of malignant change, can be determined only by microscopic examination of tissue removed for diagnosis. The differentiation between certain inflammatory ulcers and cancer by biopsy rather than by a therapeutic test suggests obvious advantages. The foregoing indicates in a general way the necessity of biopsy in the diagnosis of cancer and brings us to some of the more practical considerations of this procedure.

Is the biopsy safe? Conclusions in this respect often appear to have been based on clinical impressions rather than on scientific proof. The nature of the question itself is such that it does not permit of such generalizations as the procedure is safe or unsafe. To contend that the biopsy is safe under all circumstances is probably as erroneous as to claim that it is generally a dangerous procedure. Such factors as biopsy technic, type of tumor, anatomical location of the tumor, and the nature of the structure involved must be considered in attempting to reach acceptable standards on this point. Moreover, the clinician is frequently faced with the necessity of deciding whether the possible dangers of the biopsy will outweigh its advantage to the patient.

SKIN AND MUCOUS SURFACES

In general it may be said that both clinical and experimental observations indicate that biopsy of the skin and the mucous surfaces is safe. In two large groups of rats which were inoculated simultaneously with one of two varieties of sarcoma normally prone to metastasize, Wood found no more metastases in biopsied rats than in those having the tumor excised on the same day biopsy was made. On the clinical side, Roux-Berger observed no evidence of harm from careful excision of tissue for diagnosis in 825 consecutive cases of lingual cancer at the Curie Institute. It is my opinion that there is little or no danger in carefully removing a small piece of tissue from an exposed, ulcerated surface or entirely excising small, superficial, movable nodes. Moles showing clinical signs of activity should be excised with a wide margin of uninvolved skin, subcutaneous tissue and, in some instances, the underlying deep fascia and regional nodes. An ulcerated melanoma has usually metastasized when it comes under observation.

BREAST

The radical operation for mammary cancer is of such severity and extent that it should not be performed unless the diagnosis of carcinoma is positive. Since physicians are now seeing mammary disease at an earlier stage, often before characteristic clinical symptoms of cancer are established, the diagnosis is more dif-

ficult and frequently requires biopsy. Incision for biopsy of the breast is unsafe unless there are facilities for quick diagnosis and unless the surgeon is prepared to carry out the radical operation for mammary cancer in the event the pathologic report is positive. The practice of removing a nodule or a portion of a nodule and waiting several days for a report from a distant pathologist exposes the patient to developments which may lessen her chances for cure even with radical amputation. The mechanical trauma caused by such a procedure might easily dislodge cancer cells and the delay of several days affords an opportunity for the loosened malignant cells to reach distant lymph nodes.

There is a difference of opinion as to the best method of obtaining biopsy from the breast. Some surgeons prefer to cut directly into the tumor and make a diagnosis on gross appearance which is usually specific, or remove a piece for frozen section. If the section is positive for cancer the wound is closed over gauze soaked in 10 per cent formalin, the instruments and gloves used in obtaining the biopsy are discarded and the radical operation is performed. If the tumor is bulky this method avoids the trauma incident to a rather extensive operation of removing the tumor mass. It is probably safer to excise small tumors with a wide margin of healthy breast tissue and with extreme care not to squeeze them. This procedure avoids incision of cancerous tissue, and if caution is exercised not to squeeze the mass, cancer cells should not be disseminated.

The objections to incision through normal tissue to obtain biopsy may be avoided by aspirating breast tumors with an 18 gauge needle. This method was first described by Martin and Ellis in 1930, and has never enjoyed the popularity that its value as a diagnostic procedure deserves. This is due in part, at least, to the pathologist's unwillingness to experience himself in the interpretation of this type of biopsy preparation. The method is useful not only in breast tumors but may be used in any tumor which lies beneath the surface of normal tissue. It furnishes a convenient means of estabishing a histologic diagnosis in cases to receive preoperative irradiation and in those cases that may be treated altogether by irradiation.

CERVIX UTERI

The curability of cancer of the cervix depends on an early diagnosis. In view of this necessity, it is unfortunate that the cervix is functionally silent and allows cancer to reach an advanced stage in many instances before producing subjective symptoms. This group is substantially increased from patients who fail to heed symptoms of early cancer when they do occur and from cases in which an early diagnosis by biopsy has been delayed to observe the effect of various therapeutic measures. Healy found only 12.5 per cent of 1574 cases of cervical cancer with the disease confined to the cervix so far as could be determined clinically. The results of therapy in this group of early cases, however, show the limitations of determining the extent of the disease clinically. Only 55 per cent of this group were free from disease at the end of five years. If the cancerous process had been confined to the cervix in each case, the entire group should have remained cured for five years. Such an observation emphasizes the necessity of establishing a positive diagnosis in many cases before the clinical diagnosis is obvious. This can be done only by removing a small piece of tissue from the suspicious area or areas for microscopic examination. In lesions of the portio vaginalis, not ulcerated or eroded, the Schiller iodine test may be of value in locating abnormal areas in the epithelium. In a normal portio the epithelial cells contain glycogen granules which are stained by iodine. The cells in abnormal epithelium, as in leukoplakia and early carcinoma, contain no granules and therefore lack staining. The test is not specific for cancer but useful in locating an abnormal area in the epithelium from which a biopsy may be taken.

As a matter of record, there should be a biopsy on all cancer of the cervix, even advanced. By this means an exact diagnosis with the grade of malignancy and degree of radiosensitivity may be obtained. Moreover, the occasional surprise, both as to disease and type of disease, furnished by biopsy, even to the physician of wide experience, recommends the procedure as routine.

Biopsy of the cervix faces no real evidence that would indict it as a dangerous procedure. I am of the opinion that the clinical examination in an attempt to determine the extent of disease, which requires considerable handling and manipulation of the cervix, corpus and adnexa, is more likely to produce metastases than a properly taken biopsy. Any method of biopsy which applies crushing, pulling, twisting or tearing in obtaining tissue is capable of dislodging cancer cells and should be avoided.

CORPUS UTERI

Corpus carcinoma occurs in several well defined histologic types in which the clinical course and prognosis differ and in which the treatment may vary. The diagnostic curretage is required both to establish a diagnosis of cancer and to determine the histologic type of disease.

BONE

Bone sarcoma is usually fatal. Therapeutic results in this important group of diseases are unlikely to improve as long as the physician waits for the diagnosis to become obvious. Ewing has emphasized the necessity of suspecting osteogenic sarcoma on clinical signs and has urged that a provisional diagnosis of sarcoma be made in every case with persistent, unexplained bone pain. The radiograph at this stage is often negative or not characteristic and the biopsy frequently does not clear up the obscurity.

There are several serious objections to incisional biopsy in bone sarcoma: (1) It destroys the integrity of the capsule which is an important barrier against growth; (2) surgical trauma stimulates marked increase in tumor growth; (3) there is no malignant tumor in which tumor cell emboli break into vessels more readily and (4) the biopsy of bone tumors is usually a considerable operation and unexpected complications such as hemorrhage and infection may arise.

In view of these objections and inasmuch as there are several sources of error which impose serious limitations on the histologic diagnosis in this field, the surgical biopsy should be the last step in the diagnostic procedure. Full clinical and roentgen ray data, in experienced hands, yield a positive diagnosis in most cases (Ewing). Moreover, the experienced pathologist requires full knowledge of the clinical and roentgen ray data before making a diagnosis and, as Ewing has said, very often finds that the general data furnishes the diagnosis and strongly influences or decides the histologic report.

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DISCUSSION

Dr. Neal Owens (New Orleans): I think that in all too many instances it is a calamity for a biopsy not to be considered in attempted eradications of questionable growths. Frequently the surgeon attempts eradication of an unknown growth without all necessary instruments of precision, and most frequent among those instruments missing are those for performing a biopsy. With the equipment we have today, frozen section machines on mobile units which can be carried to the operating room floor, it is possible for the surgeon to observe tissue under the microscope within three and a half to four minutes after its removal.

Many of these questionable growths, either borderline or early cancer, if properly examined at the time of first operation, would receive more radical resection and patients thereby be saved unfortunate sequelae. We feel that all growths in questionable cases should have a biopsy by frozen section. We feel also that these questionable cases should have a complete set-up, including a frozen section machine, which is adequate for every type of biopsy indicated. One who assumes that a surgeon can by macroscopic examination determine with accuracy whether an incision is within or without cancerous tissue is doomed for future disappointments. In recent months we have had four cases of cancer of the lower lip, and in every instance the macroscopic appearances led us to feel that we were well beyond the tumor growth. Yet microscopic examination revealed that an incision had been made within cancerous tissue. In

the above mentioned cases I feel that the biopsy was of distinct advantage to the patient in aiding complete eradication, for certainly with the aid of frozen section biopsy in those cases we were able, by using it as a guide, to tell the patients that the excision was well beyond cancerous tissue.

Dr. Harold G. F. Edwards (Shreveport): I wish to say a few words along the same line. It has been my pleasure to take some 3,000 biopsies within the past few years and Dr. Mathews has made a study of all these sections.

My experience with the aspiration type of biopsy dates back some six years. Within the past three and a half years I have come to use the Hoffman biopsy punch. I have been able to perfect my technic in taking biopsies and am able to secure satisfactory tissue in 95 per cent of the cases. The Hoffman biopsy punch entails a little more trauma than the aspiration needle, but I think that the amount of tissue that one obtains is sufficient to warrant its use because it permits one to make a better study than a biopsy taken by simple aspiration. I have done about 100 punch biopsies and 75 per cent of these cases have been verified either by subsequent operation, that is, removal of the tumor or removal of the nodes, or postmortem examination, and we were surprised to find that they check in 95 per cent of the cases. Occasionally, we will enter a section of tumor which is necrotic and the report will be necrotic tissue, then a repeat biopsy should be done. I think so far as the open and ulcerated lesions of carcinoma are concerned that book is closed. There should be no question of the safety of it.

We must take repeated biopsies to get correct tissue. In the breast, the punch biopsy can be done as safely as making an examination of the breast. The Hoffman punch offers a method of cauterizing the needle track after the biopsy has been taken; an electrode is provided which may be attached to any machine using bipolar coagulation. It may be well reasoned that if interstitial radium needles is a safe procedure, and few will deny that it is not safe, then simple needle biopsy should not be criticised.

It is my belief that when the Fishbeins of the medical profession come to realize cancer as much as the public does more biopsies will be done and we will get the patients earlier, at a time when we are able to produce cures. Until then, I think cancer is going to remain second as a killer of mankind.

Dr. W. R. Mathews (in conclusion): I am glad Dr. Edwards referred to the punch biopsy which I consider a useful procedure and a more conservative method than incisional biopsy. While I am partial to aspiration, I must confess that he has remarkable success in obtaining tissue with the punch. I should like to emphasize that a negative result by either method does not necessarily rule out malignant disease. It is obvious that a small area of cancer in such an organ as the prostate or a small malignant focus in an otherwise benign tumor mass may be missed by these methods. It is more difficult to obtain tumor tissue from a scirrhous cancer than from medullary carcinoma by aspiration. Despite these limitations, these methods with practice and proper performance, yield tissue sufficient for diagnosis in the great majority of cases in which they are applicable.

The physicians who first see cases with malignant diseases are under a grave responsibility. Medical advice is sought early by many patients with cancer, but because of the lack of characteristic clinical signs and symptoms of carcinoma or because the individual is considered too youthful for malignant disease, he is kept either under observation until the clinical diagnosis of malignancy is beyond doubt or is dismissed with the assurance that there is nothing to be alarmed about. Once a case comes to the doctor, he must take the responsibility for seeing that a definite diagnosis is made as early as possible. In this respect, whether he treats the patient or not, the doctor largely determines the ultimate prognosis in the case.

A CLINICAL ANALYSIS OF 309 SURGICAL AUTOPSIES

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During the year 1933 there were performed in the New Orleans Charity Hospital 309 autopsies of surgical interest. This material we began to analyze for the purpose of determining the exact incidence of embolism as a cause of sudden or inexplicable postoperative death. We had long felt that this catastrophe was by no means as frequent or as important an explanation of such tragedies as death certificates would lead one to suppose that it was. Our study proved unexpectedly simple. In the 141 operative cases embolism was set down as the cause of death five times and proved to be the cause of death three times, but the two groups involved entirely separate cases. Embolism was not the cause of death in any case in which it was diagnosed clinically, nor was it diagnosed

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clinically in any case in which postmortem examination proved it to exist. That is an illuminating commentary upon the accuracy of our death certificates and upon our diagnostic acumen.

Our original investigation, as we say, proved unexpectedly brief, but our analysis of this material proved so interesting from other points of view that a brief report of it seems warranted. Of the 309 autopsies, 119 were for malignant and 190 for non-malignant disease. One hundred and nineteen were performed on white subjects and 190, very nearly two-thirds, on negroes. The age distribution showed 13 cases under 5 years of age, seven under 10 years, seven under 20 years, 28 under 30 years, 39 under 40 years, 59 under 50 years, 89 under 60 years, 50 under 70 years, and 17 over that age.

We must emphasize in the beginning certain facts which have been overlooked or ignored in various other reports of autopsy material. In the first place, a relatively small series of necropsies such as this gives absolutely no information about the local or general incidence of any disease and no information whatever about its local mortality. Such statistics are sometimes interpreted from these points of view, but we can see no justification for it. Unless the number of autopsies approximates the total number of hospital deaths, which it rarely does in this country, any such deductions are misleading and erroneous. Usually the situation is what it is here: the number of autopsies secured depends entirely upon the alertness and interest of the interne staff, which goes back, of course, to the interest of the senior staff, combined with the intelligence or the ignorance of the persons one happens to be dealing with, and the local sentiment in the matter. In Charity Hospital deductions as to the racial incidence of disease and racial mortality would be very misleading if made up on the basis of postmortem studies. The high percentage of autopsies on negroes is not due to any special success on the part of the internes in dealing with negro patients or to any particularly enlightened sentiment among them or their relatives. It is chiefly due, we would say from our experiences on our own service, to the fact that negroes rather frequently enter the hospital friendless or penniless or both and that in such cases their relatives are seldom in a position to make provision for their bodies. The result is that after an adequate delay to satisfy legal requirements, such bodies are available for postmortem study. Among the white patients, who are admitted to the hospital in slightly greater numbers than the negroes, such a situation does not very often arise, and the number of white postmortems is correspondingly smaller.

We can, however, fairly comment as we go along on at least certain of these conditions because we have at our disposal an adequate body of material concerning them. For some years past various members of the Department of Surgery of the School of Medicine of Louisiana State University have interested themselves in studying certain diseases as they are exhibited in the Charity Hospital, and particularly as they are exhibited in the negro race. Against such an adequate background we can fairly comment on certain of these postmortem data.

The distribution of cases in the malignant group includes: 21 cases of carcinoma of the stomach; 14 of the urinary tract; 13 of the pancreas; eight each of the large bowel, breast and face; four each of the gallbladder, esophagus, liver, rectum and lung; two each of the larynx and bronchus; one each of the thyroid, gluteal region, bone, orbit, inguinal region, muscle and mediastinum. Also included are two cases of Hodgkin's disease, two of hypernephroma, one sarcoma of undetermined origin, and 11 cases of gynecologic malignancy, 10 involving the cervix and one the vulva. The non-malignant group includes: 20 cases of appendicitis; 17 of peptic ulcer; 15 of gangrene of the extremities; 12 of intestinal obstruction; eight of benign rectal stricture; seven of suppurative arthritis or osteomyelitis; six of trauma; five of stricture of the esophagus and five of empyema and lung abscess; four each of tuberculous disease and liver abscess; three of cholecystic disease; two each of infections of the dangerous areas of the face, thyroid disease, aneurysm, peritonitis, and the brain and nervous system; 14 miscellaneous infections; and four miscellaneous conditions. Also in-

cluded are 34 gynecologic postmortems (uterine fibroids, pelvic disease, tubo-ovarian abscess ectopic pregnancy and miscellaneous conditions); two obstetrical and two otolaryngological postmortems; and 18 genito-urinary postmortems, chiefly prostatic hypertrophy.

In the malignant group the causes of death include: cachexia 33 times; pneumonia 26 times; renal complications 14 times; peritonitis 11 times; cardiac complications nine times; hemorrhage six times; cholemia five times; gangrene and lung abscess three times; shock, coronary thrombosis and circulatory or respiratory collapse twice each; intestinal obstruction, sepsis, thrombophlebitis of the iliac vein, thrombosis of the vena cava, hemopericardium and pulmonary atelectasis once each. In the non-malignant group the causes of death include: peritonitis 54 times; pneumonia 23 times; toxemia and renal disease 14 times each; ileus 11 times; cardiac disease 10 times; shock seven times; septicemia 6 times; hemorrhage 5 times; embolism 3 times; intestinal obstruction, pylephlebitis, intestinal infarction, lung abscess, pulmonary edema, tuberculosis, aneurysm, mediastinitis and cavernous sinus thrombosis twice each; subphrenic abscess, rupture of the esophagus, the liver-kidney syndrome, sepsis, anesthesia, gas bacillus infection, cerebral atrophy, thyroid crisis, respiratory failure, dilatation of the stomach, prevesical abscess, persistent thymus, encephalitis, thrombophlebitis of the vena cava, and Addison's disease once each. In two cases, both ruptured peptic ulcer treated surgically, there was no demonstrable cause of death, a state of affairs which not infrequently exists.

It is easy to see that there are certain chief causes of death. In the malignant group 94 of the 119 deaths were due to cachexia, pneumonia, peritonitis and renal and cardiac complications. In the non-malignant group 126 of the 190 deaths were due to peritonitis, pneumonia, toxemia, ileus and renal and cardiac complications. Death from pneumonia, peritonitis, and cardiac and renal conditions are common to both groups.

In the malignant group it is a tragic commentary on the sort of material handled in Charity Hospital that not a single patient could be considered as a good or even a fair risk, which means, in turn, that not a single one of these patients was seen at a period when the prognosis was in any degree hopeful. In the whole group only six radical, curative operations were attempted, and only 21 palliative procedures. Seven other patients were subjected to diagnostic procedures, among which we have included exploratory laparotomy, chiefly, it would seem, in the interests of scientific accuracy, and three were given radium, all patients with carcinoma of the face or mouth. The questionable wisdom of using radium under these circumstances is seen in the fact that in two of the three cases necrosis of the mandible followed the application.

Of the 190 patients in the non-malignant group only 25 could be rated as good risks and only 36 others as fair risks. The procedures attempted were curative in 86 cases and palliative in 16. In three gynecologic cases radium was applied, in all upon an unconfirmed and later disproved diagnosis of malignancy of the cervix; these three patients had pre-existing infections of the cervix and uterus which were fanned into fresh activity by the radiation and which, directly or indirectly, were the cause of death. In five cases operations were done which were either unrelated to the chief pathologic condition or were of questionable wisdom, such as incision and drainage in an infection of the dangerous area of the face.

Here, as in any study of mortalities, the time element plays an enormously important part, though we shall not be so bold as to say how many patients could have been saved if they had been seen earlier. Some diseases such as carcinoma of the liver or of the gallbladder run so brief a course that the outlook is utterly hopeless, while the onset of carcinoma of the stomach is in many cases so insidious and so treacherous that the situation is little better. But when malignancy attacks such visible, accessible regions as the face or the breast it would seem that patients should not die of it when medical aid is so readily available. In such conditions as appendicitis, intestinal obstruction and the catastrophes of peptic ulcer the mortality is in direct proportion to the time at which treatment is instituted, and we may

fairly say that the great majority of these patients could have been saved if they had sought aid earlier. A few of them died because their physicians procrastinated before they were admitted or because the hospital staff failed to act promptly after they had been admitted.

Another question arises in this connection, the justification for the type of surgery which can better be described as a premature postmortem rather than as an operation. In a fair number of cases surgery was withheld because the patient's condition seemed hopeless. Most of the time that surmise was probably correct, but sometimes it seemed to us that it was not. Every surgeon has literally dragged back from the gates of death individuals behind whom those gates already seemed to have closed and the decision not to operate in a seemingly hopeless case must always be made on the merits of the individual case and then with extreme caution. Such conditions as acute appendicitis, visceral ruptures, and intestinal obstruction can be benefited only by surgery, and in our opinion the risk of the disease is sufficiently great to warrant the risk of surgery whenever the patient is seen and however poor his condition may be. A surgeon has no right to refrain from surgery merely for the sake of his personal statistics, unpleasant as it may be to lose a patient on the operating table. That is what Lincoln Davis calls operating for a batting average.

A very important consideration is the matter of correctness of diagnosis, and from that standpoint it is worth looking at these cases in some detail. The diagnosis was missed 24 times in the 119 cases of malignant disease, roughly 20 per cent, though in not a single instance do we feel that if it had been made correctly the final outcome would have been altered to any degree. Quite aside from the advanced state of their disease, these patients had everything else against them. In the 21 patients with carcinoma of the stomach, for instance, six had cardiac and two nephritic disease, two were diabetics, one had pellagra, and in one case the malignancy had ruptured into the peritoneal cavity. In the eight cases of carcinoma of the breast the malignancy was recurrent in two and bilateral in one, and metastases were present in all; one patient in this group had a pathologic fracture of the femur. Rupture had occurred in two of the eight cases of carcinoma of the large bowel and in two of the others complete obstruction was present. One patient with carcinoma of the rectum also had a ruptured bowel. Obviously there is little that can be done for patients in this condition. Furthermore, when they come to the hospital in the final stages of their disease even the most astute of clinicians can scarcely unravel the tangled skein and determine which symptoms and findings are characteristic of the original malignancy and which are the terminal manifestations of all malignancy.

The errors in this group follow: Two cases of genito-urinary carcinoma were diagnosed as carcinoma of the stomach and cirrhosis of the liver. Six cases of carcinoma of the pancreas were diagnosed as carcinoma of the stomach (twice), sarcoma of the mesentery, carcinoma of the common duct, neoplasm of undetermined origin, and cardiac disease. Two cases of carcinoma of the stomach were mistaken for cardiac disease. The four cases of carcinoma of the gallbladder were diagnosed as carcinoma of the stomach (twice), carcinoma of the pancreas, and cholecystitis. The four cases of carcinoma of the liver were diagnosed as cardiac disease (twice), cirrhosis of the liver and carcinoma of the gallbladder. The two cases of carcinoma of the bile ducts were diagnosed as cholecystitis and carcinoma of the pancreas. The two cases of carcinoma of the esophagus were diagnosed as tuberculosis and phlebitis. One case of carcinoma of the rectum was diagnosed as carcinoma of the sigmoid, the case of carcinoma of the inguinal region was considered elephantiasis, one case of carcinoma of the bronchus was considered a mediastinal tumor, and three cases of carcinoma of the lung were diagnosed as cardiac disease, pneumonia and tuberculosis. The incorrect diagnosis, as we have said, made no difference in any of these cases, but pulmonary and bronchial malignancy is no longer the hopeless condition it was, and we do believe that more care and attention should be devoted to this type of disease, in the hope of finding the occasional case amenable to surgery. Neither case of hypernephroma was diagnosed in life, though

at autopsy the pathologist in one case very cleverly made the diagnosis before the body was opened from gross observation of the skin metastases.

In the non-malignant group we find that in four cases of acute appendicitis operation was not done because the diagnosis was mistaken. In one case of supposed arachnoidism the history and findings pointed only to that condition and no possible blame can be attached to the clinicians who missed the diagnosis. In the case diagnosed as carcinoma of the rectum the story was confusing. But there seems no reason for confusion in the case diagnosed as typhoid or malaria, and it is hard to understand why operation was not done promptly in a patient supposed to have a tubal abortion. These four errors were fatal ones.

Acute appendicitis is one of the conditions already mentioned which has been studied in detail by members of our Department. In various papers analyzing 2715 cases, Maes, Boyce and McFetridge have pointed out, as many other writers have done, the extreme gravity of this condition in youth, and also, as not so many writers have done, its very serious aspects in adults over 40 and in negroes. It is significant then, that six of the 20 patients autopsied for this disease were under 12 and four were over 40 years of age, and that 12 of them were negroes. That eight of the nine patients whose histories were definite on this point had taken purgatives is a state of affairs all too familiar to us all. Special mention should be made of the case of appendicitis in which operation was not done because the condition was supposed to be malaria or typhoid fever. This diagnostic error was thoroughly studied by Copland and Miangolarra. In a three-year period at Charity Hospital they found that 43 of 854 patients with malaria presented an abdominal syndrome resembling appendicitis, and that in 12 of these cases operation was done on the mistaken diagnosis. In 10,818 cases of appendicitis they found malaria present in 0.11 per cent. They emphasize the wisdom, if a differential diagnosis cannot be made promptly, of resorting to operation in malaria rather than taking the risk, as was done here with fatal consequences, of overlooking a case of acute appendicitis.

Four of the eight benign strictures of the rectum were diagnosed as carcinoma. Today the fact that seven of the eight patients were negro females, that two of them had associated fistulae, and that two others had pellagra would point directly to the diagnosis of lymphogranuloma inguinale. But these autopsies were done in 1933, and it was not until the following year that Lichtenstein began to study this disease in Charity Hospital. The diagnoses elsewhere would probably have been just as incorrect, for the Frei test was then in general use in only a few institutions.

Of the 17 peptic ulcers only one represented elective surgery. Two were bleeding ulcers, 13 were ruptured and in one case there was complete pyloric obstruction. The diagnosis was missed in five cases, being variously considered alcoholism (with perfect justice), tuberculosis, acute pancreatitis, ruptured gallbladder and carcinoma of the stomach. The last mentioned patient was operated on, the others were not, the error in diagnosis being fatal, but it is hard to see why acute pancreatitis and rupture of the gallbladder should not have been considered surgical emergencies. Maes, in a recent study of 107 deaths from peptic ulcer in Charity Hospital, has pointed out that only in 17 cases did the fatalities follow surgery which could in any sense be called elective. The remainder were accounted for by the catastrophes of ulcer, and two-thirds of the patients had been treated medically or actually were in the hospital undergoing treatment when the fatal accident occurred. It is worth commenting on that much the same situation holds in this postmortem material, and Maes' point is well taken, that the medical man who treats patients with ulcers to the stage of catastrophe ought to share with the surgeon who tries to remedy the situation the onus of what has happened.

There were four fatal errors in the 12 cases of intestinal obstruction. One case was diagnosed as stricture of the esophagus, one as pneumonia, one as old ruptured ulcer, and the fourth patient developed his obstruction after an operation for cataracts and proved again the sad truth that the most unsafe place in the world to develop the symptoms of one disease is in the hospital under treatment for another disease. The diagnosis was missed in all four

cases of liver abscess, and the error was probably fatal in the two cases of amebic abscess. The diagnosis of pneumonia was made in a 15 months old child, and the other diagnoses included rectal stricture (for no discernible reason), subphrenic abscess and cholecystitis. In the seven bone cases the diagnosis was missed in one, a suppurative arthritis being mistaken for a malignant tumor, with fatal consequences. In the three cases of lung abscess the diagnosis was missed twice, being considered whooping cough and pneumonia in a five months old child and pulmonary malignancy in the other patient. Both patients were poor risks and the diagnostic error probably made no difference, but here, as in malignancy of the lung, we feel that more earnest diagnostic efforts should result in a higher proportion of successful therapeutic results.

The diagnosis was missed in both cases of peritonitis, one being considered carcinoma of the pelvis and enterostomy being done in the other on a diagnosis of ruptured viscus. The four cases of tuberculosis were variously considered carcinoma of the stomach, malignancy of the spine, rectal fistula and pulmonary disease. In the group of miscellaneous infections a carbuncle was mistaken for malignancy and biopsy was done, with most unhappy results. In the group of miscellaneous diseases the diagnosis of Addison's disease was missed, the error making no difference in the outcome of the case.

In 96 cases of non-malignant disease, then, the diagnosis was missed 35 times, roughly 36 percent, in 17 with fatal consequences, while in 10 others a correct diagnosis might have altered the fatal outcome, though of this no one can be certain after the event. The gynecologic cases were all diagnosed correctly, and we shall not comment on them, except to stress the unwisdom of operating on pelvic disease that has not been properly cooled. The genito-urinary cases were also all diagnosed correctly. It might be mentioned that most of these patients were very poor risks, most of them suffering from extravasation of urine associated with ascending infections.

This study proves again that the unusual is really rather frequent. In the 309 cases, for instance, are three cases of hypernephroma (one of which was discovered accidentally at autopsy and had nothing to do with the fatal outcome); one case of paratyphoid osteomyelitis, only 16 of which Veal found in the literature up to 1933; two cases of carcinoma of the bile ducts, less than 100 of which Lampert found on record up to 1933; one case of melanosarcoma of the rectum, less than 100 of which Boyce found recorded up to 1934; four cases of carcinoma of the liver and four of carcinoma of the gallbladder, both infrequent if not actually unusual conditions; and a case of Brodie's abscess and the sclerosing osteomyelitis of Garré in the same patient.

Worthy of mention are the four instances of evisceration (following operations for uterine fibroids, ectopic pregnancy, carcinoma of the stomach and intestinal obstruction). This condition was studied in detail in 1934 by Maes, Boyce and McFetridge, who analyzed 44 cases from the records of Charity Hospital. Their conclusion was that this is a complication in which the outcome depends more upon the condition of the patient and upon his disease than upon the accident itself; indeed, they are inclined to regard the accident as due frequently to the patient's condition. Their reasoning seems justified in the cases in this series, in all of which the patients were poor risks.

It is characteristic that the five strictures of the esophagus occurred in negroes, four of them in children under three years of age, one of whom died from a rupture of the esophagus immediately following dilatation; her gastrostomy had been closed and she was considered well on the way to recovery when this accident, apparently a preventable one, cost her life.

It is typical that both thyroid deaths occurred in negroes. In a study of 662 cases running from January 1, 1927, to July 1, 1936, Maes, Boyce and McFetridge have shown that while the mortality for the whole series is 5.74 per cent, the mortality for the negro patients is 7.6 per cent against 4.1 per cent for the white patients. More striking is the difference in toxic disease, 11.3 per cent for the negroes against 6.85 per cent for the whites, and in males, 26.5 per cent for negro males against 5.1 per cent for while males.

The four cases of carcinoma of the liver characteristically occurred in negro males, in

whom, in a study of 28 cases, Boyce and McFetridge have pointed out that the disease is most frequent. The authors comment in this study on the very brief course of this disease, no case in their series exceeding five months, and they point out that antemortem diagnosis, which was made in only two of their cases, is rarely made except in Eastern clinics, where the incidence is relatively high. These same authors, in an analysis of 25 cases of carcinoma of the gallbladder, call attention to the high incidence of this disease in negroes. In their series 11 cases occurred in negroes (as did all the cases in this postmortem series) although the relative racial incidence of gallbladder disease of the non-malignant variety is not more than 1 to 6. Twelve of the 15 cases of gangrene of the extremities studied in this postmortem material occurred in negroes, and this again is typical, as Veal points out in an analysis of 171 cases. This race exhibits this disease in its extreme manifestations and the mortality of operation is always very high.

Deadman, in a study of autopsy material, says that unexpected postmortem findings would not usually be unexpected if the cases were properly studied. That point this present study corroborates. Cabot says that diseases which kill so quickly that the period of observation is brief and the history is faulty will always show a high percentage of errors. That point this study also proves. It is generally granted that relatively or absolutely rare diseases are less likely to be diagnosed correctly antemortem than more common diseases, but it is not so generally realized that more common diseases, as this analysis shows, are also likely to be overlooked, with a far higher percentage of fatal consequences. That more care in details would result in more exact diagnoses and better surgical results there can be no doubt, and an analysis of postmortem material such as this brings home that fact, we would say, as nothing else possibly can.

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CHEMICAL BURNS OF THE EYE*

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A chemical burn of the eye is one of the most serious injuries with which the ophthalmologist has to contend. They cause more damage and many more complications than either the thermal or the various light burns because of their destructive, as well as their chemical affinity

*Read before the Louisiana State Medical Society, Lake Charles, April 27-29, 1936.

and combination with the various tissues in the eye. However, you may have a combination of the thermal with the chemical as they may enter the eye in a heated condition or may generate heat, such as quicklime which is slaked by the tears. The damage done by chemical burns depends upon the amount reaching the eye, its strength, whether under pressure, heated, length of time it is in contact with the eye and lastly the peculiarity of that particular chemical. In the eye the cornea being transparent is a more highly complex and specialized tissue than the conjunctiva, and it therefore suffers a loss of this transparency when scar tissue is formed in repair. The denseness of this scar tissue depends upon the depth of the destruction and should this descend to Descemets membrane, light transmission is an impossibility.

I will divide the more common chemical burns into the acid and alkali groups for description.

Acid burns are pathologically different from the alkalies in that the conjunctival and corneal albumin is precipitated, forming an eschar, which limits the action of the acid on the underlying tissues. Here the cornea looks dull and opaque in mild cases, but in the worst ones it is as white as porcelain, may become necrotic, herniate or rupture with resultant panophthalmitis or be replaced by a dense roughened scar, making a hopelessly blind eye. The most common acid burns are: sulphuric, hydrochloric, carbolic, nitric and acetic.

Alkali burns do not form an eschar to limit their destruction and hence penetrate into the anterior chamber and deeper structures of the eye. There is seen lid edema, chemosis of the conjunctiva and clouding of the cornea which is usually not very dense, and later complications such as iridocyclitis and secondary glaucoma. These cases appear not severe and seem to improve, but after a few days the cornea sloughs and may result in phthisis bulbi, panophthalmitis or ruptured cornea, this latter if intraocular tension has increased. If the cornea is anesthetic following these burns, our prognosis should be guarded and very grave when ammonia is the agent, according to Denig and Wagenmann.

Ammonia is regarded as the most serious of all chemical burns. The cloudiness is never as dense as seen with lye or lime burns and its peculiarity is that the eye seems to improve for possibly a week, then the cornea literally melts away, panophthalmitis sets in and the eye is lost. According to Thies, Wagenmann and Pilcher, ammonia acts as a base on living and dead albumin, forming the soluble alkali albuminates which possess great toxic power. This chemical has great affinity for water and because of this water extracting power, the alkali penetrates into the deeper structures of the eye, causing more damage and necrosis. Thies and Guillory state that ammonia gas is even worse and that the eye is invariably lost. Even spirits of ammonia, the common household remedy containing only 10 per cent ammonia, if allowed to come in contact with the eye can cause a cataract and even destroy it, as reported in a case by Abramovicz.

In lime burns, according to Guillory and Fuchs, the corneal opacity is due to a chemical combination of lime with the cornea forming calcium albuminate and calcium carbonate. As the affinity of lime for albumin is slight as compared with its affinity for carbonic acid, calcium carbonate forms the major part of the opacity. The gradual increase in the opacity is due to the further conversion of the albuminate into the carbonate by the carbonic acid of the tissues and the air. Hence the incrustation, according to Barkans, is mainly calcium carbonate.

The action of lye resembles ammonia. The burn is intensive and repair late. Yoshimoto performed experiments on rabbits' eyes using acids and alkalies in different dilutions. The order of chemicals used in degree of severity was: soda lye, hydrochloric acid, sulphuric acid, nitric acid, acetic acid and ammonium hydroxide.

TREATMENT

In the treatment of chemical burns there is nothing specific, but much can be done early to limit the destruction. It is here that I wish to make a plea to the general practitioners, who generally see these cases first and often hours before the ophthalmologist, to equip himself for such emergencies and render the proper first aid. Underhill, of Yale University, in

urging first aid treatment in industrial plants, recommended copious flushing of the eye with tap water and contended that the damage done by either the acid or the alkali was immediate and that neutralizing agents were of little value. Certainly these ideas have permeated industry as well as the medical profession as the only first aid measure. Surely the introduction of strong alkalies to neutralize acids and vice versa only adds fuel to the fire and causes even more destruction, but the use of weak neutralizing agents after removal of the offending chemical will save and preserve many a useful eye.

Copious irrigations of the eye, with the lids everted so as to wash all folds of the conjunctiva, with ordinary tap water is of first importance and the mainstay of first aid treatment. Remove, if necessary with swabs of cotton, any remaining particles of the chemical; especially is this true in lime, lye and phenol burns. Davidson, after experiments on rats, stated, and Pilcher is of the same opinion, that only after the above procedure should neutralization be attempted.

We all should have litmus paper in our office which readily determines for us whether we are dealing with an acid or an alkali. If an acid, wash the eye with 5 to 10 per cent solution of bicarbonate of soda. If an alkali, wash the eye with 1 per cent acetic acid. It may be found necessary to instill a few drops of 4 per cent solution of cocaine to accomplish the procedure thoroughly. Then introduce a bland oil such as olive or castor oil into the eye, apply a light bandage and refer to an oculist for furthe treatment and observation. For the first 24 hours cold applications are very gratifying after which warm seem to do more good. Atropine and the like should be used with caution and Stieren and Lieb believe it contraindicated in ammonia burns because of the danger of secondary glaucoma. Bentzen showed a definite increase in tension with ammonia burns in his experiments with animals. Cross suggests and recommends the use of glycerite of tannic acid for alkali burns. In his experience the drug stopped the prolonged action of the chemical and it should be used.

In the teatment of corneal opacity, Barkans recommends the use of freshly prepared, neutral solution of ammonium tartrate; this solution *must* be neutral. The eye should be cocainized and then flooded with 4 per cent solution neutral ammonium tartrate for half hour twice daily, increasing strength to 10 or 20 per cent gradually. Length of time elapsed did not seem to have any bearing on the end result. Thies, Siegist and Pilcher recommend puncture or paracentesis of the anterior chamber to remove any ammonia present in the aqueous. Middleton states that ammonia will osmose into the aqueous rapidly and if you do not drain the aqueous chamber soon after the injury, the aqueous will be converted into an ammonia solution which will invariably destroy the iris and vitreous, also the eye.

Denig and Roth believe that oral mucous graft offers the best treatment if the greatest part of the conjunctiva has sloughed away or the cornea shows loss of epithelium and is insensitive, in which case the plastic operation should be done before the fifth day.

In preventing symblepharon, supplying the conjunctiva with oil, free movements of the lids and eyeball and separating the adhesions that may form daily, usually gives good results. Stanford recommends the inside of an egg shell placed between the globe and lids. Hurst turns the lids placing two or three sutures through the retrotarsal folds, then carried to the forehead for the upper lid and to the cheek for the lower lid, where they are held by adhesive tape until burned conjunctiva is healed. Thies makes no attempt to prevent symblepharon as he believes that impossible. He merely uses a sterile ointment and a bandage. When healing is complete and at a standstill he operates.

SUMMARY

1. Copious irrigations with water are better than chemical neutralization.

2. Following irrigation neutralize with 1 per cent acetic acid for alkalies and 5 to 10 per cent bicarbonate of soda for acids, will save many eyes.

3. There is no specific treatment for chemical burns of the eye.

4. Prognosis should be guarded; an anesthetic cornea is grave.

5. Glycerite of tannic acid should be tried in alkali burns.

6. Neutral solutions of ammonium tartrate are of value in clearing corneal opacities after lime burns.

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Gifford Ocular Therapeutics.

DISCUSSION

Dr. W. B. Clark (New Orleans): I think Dr. Moss is to be commended for presenting to us such a timely subject, but I am afraid the men he wanted to hear this are not here this morning.

Dr. Sellers has just said that ninety-five per cent of you do obstetrics. I see some urologists and quite a number of eye, ear, nose and throat men around, so I am afraid there were very few industrial surgeons and general practitioners here to hear this paper.

In my opinion, what the man does who sees the case first has a lot to do with the result that you get in treating a chemical burn of the eye.

The point Dr. Moss made using water to irrigate the eye rather than attempting to neutralize the chemical is a point well taken. Water, being a universal solvent, will neutralize by dilution most acids or alkalis. Valuable time and vision can be saved by using water copiously.

I recall, that just after I had graduated from medical school, I taught first aid for the Long Lines Department of the American Telephone Company, teaching the construction gangs how to administer first aid to their injuries. The talks were prepared by the medical staff in New York and I remember they listed the commonly encountered alkalis and acids in detail, and gave antidotes for each, in case of burns to the eye. I know now how much better it would have been if I had taught these men that when they got an alkali or acid in their eye, to stick their head in a keg of water and open the eye forcibly so that the chemical could be diluted and washed out.

There are no other points in the treatment that I might bring out that Dr. Moss has not mentioned, but I will attempt to elaborate on some of the points he made. First, you irrigate with water. Then one of the mild anesthetics that we use in ophthalmology, should be instilled in the eye. This helps a great deal in relieving the pain and associated blepharospasm. If you anesthetize the eye immediately after washing it out with water, you can invert the lid much easier and cause the patient much less discomfort in making your examination and using the neutralizing agent. Some of us may not always have a neutralizing agent handy, and this relief of pain helps to satisfy the patient until it can be procured.

Then, of course, you will instill your ointment or oil. It does not matter whether you use olive oil, castor oil or mineral oil. Sometimes you may have to use cylinder oil from a truck, or ordinary white vaseline. It is the lubrication that keeps the conjunctival surfaces of the lid and the conjunctival surfaces of the globe from sticking together resulting in eschar and symblepharon.

Back to the choice of anesthetic to use. I prefer to use one-half per cent pantocain solution because it is a neutral solution. Gifford and others have found that solutions when instilled in the eye, that if they are near neutral or slightly alkaline, are less irritating. Pantocain is slightly on the acid side. Cocain and butyn and most of the others are distinctly acid and cause a good deal more burning.

For the lubricant, we use one per cent holocain and adrenalin ointment. We use irrigations following the burn every hour, and then following that we use the ointment. We irrigate freely and copiously, because it relieves the eye of the accumulating mucus and products of inflammation. The discomfort following burn is very severe, and the strings of mucus that accumulate in the conjunctival sac, and roll over the denuded cornea cause a great deal of pain. So we use copious irrigations every hour, followed by the application of this ointment. The holocain keeps the eye more or less anesthetized and helps relieve the pain, the adrenalin helps keep down congestion.

Of course, these drugs are in more or less constant contact with the eye, being suspended in an ointment base and you do not get the marked secondary congestion that you get from a drop of adrenalin, and the ointment base helps to keep the lids from sticking to the globe.

For the irrigating solution, in our private work we prefer the use of one of the mildly alkaline type. And I think the thing we should suggest to the general practitioner is something that is read-

ily obtainable, and a simple solution that is easy to make. You can find the following ingredients in almost any negro hut or fisherman's shack. Take a quart of boiled water and two teaspoonsful of ordinary table salt and one teaspoonful of cooking soda. This makes a non-irritating solution that is mildly alkaline. It can be made almost anywhere, and the eye can be kept safely clean with it.

As to the after treatment, atropine, and paracentesis should be left to the ophthalmologist, because he is the one who should say whether a patient should use atropine and decide if paracentesis is indicated.

The point Dr. Moss has made and that I want to emphasize is that we do want the general practitioners to give particular attention to keeping these cases clean until they are sent to the ophthalmologist, because the ophthalmologist can give him back a much better eye if the case is properly cared for in the first twenty-four hours.

Dr. T. J. Dimitry (New Orleans): Lime, lye burns and acid burns of the eye in effect are "hellish." They commonly destroy it and the lids grow to the remains of what was an eye. Because of these effects brought about by these hydrophilic agents, I teach the advantages of plenty of water immediately applied and I avoid stressing the antidotes. They are usually not at hand, and, when obtained, their virtue is limited.

I always emphasize, knowing that the eye is usually destroyed, that the lids should be prevented from growing to the eye, so that, as time passes, an artificial eye can be worn. With this in mind, I get busy early and I do not wait for the formation of the symblepharon. The desire is to prevent it. I teach a method of obtaining this from the ovum of the chick and the milk of the cow. Soon after the accident, the ovum of the chicken is sectioned and inserted over the eye and under the lids. Milk is used parenterally to overcome infection and to produce a better healing.

The procedure is to cocainize the eye and break up synechias that are being formed. A laying hen provides the ovum. A large one is usually selected, and, after cutting it in two, a section is inserted on the eye under the lid. When it was first used, the benefit obtained was thought to be physical, namely, keeping the lids protected from growing to the eye by a definite type of membrane. Afterwards, it was thought to have a nutritional effect. It is easily held in position by its own adhesive power. Stitches are not used. The albuminous and sulphur contents of the ovum are helpful. The cow's milk is used as a foreign protein.

This procedure has served me very well and it is a simple procedure.

Dr. M. Earle Brown (New Orleans): The importance of rendering first aid treatment in chemical burns of the eye cannot be too strongly emphasized, constituting as they do a serious ocular hazard, generally resulting in blindness.

The neutral salt of ammonia tartrate, so necessary in the treatment of lime and cement burns of the eye, is difficult to procure and must be freshly prepared.

Many years ago I kept twenty-four grains of the neutral salt of ammonia tartrate in a sterile bottle and another bottle of one-half ounce of sterile water in the instrument trays in the outdoor clinics of the Charity Hospital and the Eye, Ear, Nose and Throat Hospital. The pain from lime and cement burns of the eye is most intense and should be relieved by instillation of butyn, two per cent solution, while an assistant prepares the neutral salt of ammonia tartrate.

During February, 1929, I treated a young man (Mr. R. G.) for a cement burn of both eyes. When the patient entered my office his entire face was covered with cement, both eyes were closed, and upon opening them the conjunctival sacs were filled with cement. The cornea of each eye was cloudy and the conjunctiva had already commenced to slough. The patient suffered excruciating pain. The greater part of the cement was removed, butyn instilled and freshly prepared neutral salt of ammonia tartrate, ten per cent solution, was instilled into each eye. After a period of twenty or thirty minutes, the patient was removed to the Eye, Ear, Nose and Throat Hospital and routine treatment was instituted.

The opacity of the right eye cleared up nicely, while the left eye retained an opacity on the nasal side about one-third of the cornea. The conjunctiva sloughed and posterior symblepharon developed. During May of the same year, I operated and grafted a triangular piece of mucous membrane from the patient's penile foreskin, completely curing the symblepharon. When finally discharged, the patient enjoyed normal vision in the right eye and 27/70 in the left eye.

THE INTRODUCTION OF A NEW VEGETABLE CONCENTRATE IN THE TREATMENT OF DIABETES MELLITUS*

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When we speak of diabetes, we are apt to cover a very broad field, because there are numerous classifications. However, I will not enter into these various classifications, as every practitioner should be familiar with them.

For convenience I recognize two types of true hyperglycemia according to the influence

*Read before the Louisiana State Medical Society, Lake Charles, April 27-29, 1936.

upon the pancreas, whether mainly functional or organic. Functional diabetes mellitus is the type met with in middle age or over, resulting from pancreatic stress due to chronic digestive disorders. True pancreatic disease with anatomic invasion of the endocrine structure of the pancreas, hypoplasia, atrophy, or fibrosis, apparently is the type more frequently met with in young people. It is the adult type which we meet with very frequently in practice. While there is no definite age demarcation between these two conditions, still there are wide differences in their prognosis and therapeutic responses, just as there are between the functional and organic types of any of the other endocrinopathies.

In 1922, when Banting and Best made the announcement of insulin, this accomplishment was indeed a Godsend to mankind and an imperishable tribute to the men who made it possible, however, we must admit that insulin therapy has definite limitations and certain disadvantages, which we know is only of temporary value. It is liable to produce accessory effects which render its use in different cases a delicate matter. It is a medication which must be administered and carefully watched by a physician. As time goes on we are becoming increasingly aware that insulin is not quite the whole thing. It does not represent the maximum therapeutic hope which can be offered to the diabetic, and to forget its limitations is to deny the greatest degree of succor to many sufferers. The use of insulin has not lowered the mortality from this disease, but instead the death rate has been increased ever since the introduction of insulin.

R. H. Major, in his article "Eight Years of Insulin", compares the death rate from diabetes mellitus in the United States for 1919, three years before the introduction of insulin, with the rate in 1925, three years later. The figures were 14.9 and 16.9 per 100,000 respectively. The ratio of diabetic deaths to total deaths in Massachusetts shows that in 1920 it was 0.86, while in 1925 it was 1.56, nearly twice as high. What do these figures mean? Either that insulin has failed in the promise of checking diabetes mortality, or that we, as physicians, have failed to employ it intelligently. This is no disparagement to insulin, but rather an attempt to measure the borders of its vast domain.

Insulin is not quite a panacea for diabetes, so it seems timely to complain against the obliteraton of anything which might act as a substitute. The therapy of diabetes includes more than insulin for the very good reason that the pathology of diabetes involves more than Langerhansan defects. Therefore, the physician's ideal should be to have at his disposal a medicament, which can produce in hyperglycemic and diabetic patients the fundamental action of the insulin, but with none of its secondary or accessory effects, less dangerous to apply and easier to manipulate.

This was the beginning of my study of a possible vegetable "insulinoide" that might exist somewhere in the vegetable kingdom producing a hypoglycemic principle either in the form of a "glucokinine hormone" or a chemico-physiologic stimulant to the abnormally defective pancreas, when orally administered in concentrated form.

Researches have been made and are still under way concerning various vegetable extracts, which may have the property. Since 1923 work along this line has been done by Collip, Dublin, Corbitt, Eisler, Protheim, Skikinani, Kaufman, Simola, and Donard, with various extracts of yeast, dry beans, bark, and leaves of Texas cuspidata, pinus densiflora, whortleberry, shell of acorns, pea pods, sambal fruit, cotton plant roots, husks of oats, rhubarb leaves, germinated barley, and others. None of these have ever come to light so far for practical application and none have been able to replace insulin even in mild cases. Therefore, there should be no limit to further investigation into the vegetable world for something better and more effective in a general way.

During recent investigations and researches along this line, I have found a hypoglycemic virtue in the common wild thistle (specie carduus) from which a concentrate is made from the stalks and leaves by a special dehydration process involving the constant recirculation of inert gases under low temperature, free oxygen being effectively excluded, thereby preserving the vitamins. The finished product reveals an

impalpable powder made under pressure by rapidly rotating hammers in a mill to insure the highest degree of cellular fracture which must be done correctly to obtain the maximum therapeutic effect through necessary absorbtion by the gastrointestinal tract.

The dosage of this finished product is from two to four grams three times daily in capsule or powder form half hour before meals. To this concentrate I have given the name "cardellyn". Just how it acts on carbohydrate metabolism is not yet exactly known. Whether it contains a possible vegetable "insulinoide" or other active principle has yet to be found through further researches. What has been gathered so far from experiments made upon dogs, is that it possesses physiologic stimulant properties both to the pancreas and the liver through the possible activation of the duodenal hormone, secretin. It was found that in very large doses it produced in anímals an increased flow of saliva and in still larger doses emetic properties similar to ipecac, but did not produce any gastrointestinal irritation, and no irritation to mucus membranes in the lower bowel.

Experiments carried on during the past two years have definitely established its absolute harmlessness in therapeutic doses on the human system. Dogs fed on very large quantities of the concentrate over a period of one year did not show any evidence of kidney irritation through its excretion.

Favorable results obtained in diabetic cases of lowering glycemia were most probably due to the activation of the glandular functions involving the production of more secretin, which is the initiator of the pancreatic function, the stimulation of the glycogenic function of the liver, plus a possible "insulinoide", and the vitamins A and B and especially vitamin B, which according to the family of plant, it contains in abundance. By the whole process the deficient pancreas is thereby made to produce its own insulin, provided the islands of Langerhans are not totally deficient. If such be the case there will be no need of supplying insulin by means of a hypodermic and the patient has no need for insulin medication.

Let me add that while we physicians are indebted very greatly to the discoverers of insulin, which must be used in emergencies, let me make a plea not to be too hasty on the hypodermic in every case of diabetes with low tolerance, until it can be proved satisfactorily that such a case is of the advanced organic type and therefore must have insulin.

The use of insulin has almost become universal because no stubstitute has been found on a high maintenance diet, but if we stop to analyze its possible harm to patients, we would do well to select our cases and give insulin only to insulin needy patients. Insulin does not control the diabetic symptoms such as subnormal weight, polyphagia, and polyuria. The marked degeneration of the liver, and the extreme arteriosclerosis developed in dogs on long insulin management indicates either diabetic processes not controlled by insulin, chronic toxic action of insulin itself, or such toxic action of the other substances in the insulin mixture.

Chemical analysis of "cardellyn" show the presence of alkaline mineral salts in abundance which in itself is beneficial in correcting the tendency to acidosis, by furnishing the alkali which prevents the ketone acids from drawing upon the fixed "alkali reserve" of the body and thereby preventing a hyperketonuria.

Cardellyn has successfully controlled 100 per cent of functional diabetes, returning blood sugar to normal or near normal on a liberal diet. In cases of atrophy, and fibrosis of the pancreas, the true organic type, cardellyn will always fail and therefore insulin will become necessary.

CONCLUSION

Functional diabetes deserves to be considered from a wider point of view than that of pancreas alone. One of the most striking facts verified clinically by the patient regarding the use of cardellyn, is precisely the rapid and striking effect on the improvement of the patient's general condition.

In diabetic patients the improvement coincides with the lowering of glycemia, the disappearance of urinary sugar, and the diminution of the signs and symptoms of diabetes.

The diabetes of children being evidently a more definite trophic or hypoplastic disease, efforts to re-establish the function of the atrophied cells practically always fail and therefore

insulin becomes imperative.

The effects of cardellyn produce a long lasting building up of tolerance and a reduction of blood sugar through a general stimulation of the whole digestive mechanism. It does not however lower the normal blood sugar in normal non-diabetic individuals. Cardellyn can also be used as a therapeutic test for true pancreatic disease.

The clinical and laboratory results obtained thus far become a nucleus for a further exhaustive study of this variety of plant to determine the possible existence of an "insulinoide".

However, whatever active principle is found, I would not recommend the use of an extract in preference to the whole concentrate because the whole concentrate contains the added alkalinization which is so very important to the diabetic. That numerous cases who had insulin or taking insulin had been made to discard their hypodermic when placed on cardellyn. The work is only begun. This report of over 50 cases is only preliminary to that which is to follow and I am in hopes of being able to give in the near future a more extensive report on the work to be accomplished.

DISCUSSION

Dr. Allan Eustis (New Orleans): I have been very much interested in Dr. Bertucci's work, and I want to congratulate him upon the modesty of his claims. We all understand that this is simply a preliminary report.

He brings out the fact that there are several types of diabetes. Formerly, we thought of diabetes as due only to degeneration of the islands of Langerhans. Now, as we are making more of a study of diabetes, we frequently find patients showing a type without any demonstrable lesions in the islands of Langerhans, and so, are coming to the conclusion that there is some other factor besides degeneration of the cells in the islets of Langerhans. I want to call attention to the fact that severe diabetes can be caused by lesions in the hypophysis, and this substance of Dr. Bertucci may act through the central nervous system. Only recently I saw such a case. A man who had never had any sugar in his urine, and with a normal blood sugar, had a small cerebral hemorrhage, which evidently involved the hypophysis. Ten per cent of sugar appeared in the urine and 446 mg. in the blood. He has since developed a moderately severe diabetes and requires 20 to 25 units of insulin in a day.

Dr. Robert A. Strong (New Orleans): Ever since Banting's exposure of the islands of Langerhans and the work of Dr. Colla which was largely responsible for the production of insulin, I have always been interested in reading from time to time of the work done with insulin substitutes, which, of course, up to now have encountered many difficulties. I am glad to see Dr. Bertucci has given an interesting investigation, which we are all willing to look forward to with a great deal of interest and hope as we would like to go beyond insulin, although when insulin was given to us, it was an enormous step forward.

Dr. A. A. Herold (Shreveport): As far back as one can remember, there have been claims for various remedies that lower the blood sugar. Amang them, I might mention myrtillin, which Dr. Bertucci has referred to; it is the ground leaf of a certain species of blueberry, which has been used by the peasants of Hungary for hundreds of years as a cure for polyuria; a Hungarian chemist brought it to Dr. Fredrick M. Allen's attention and he used it with some success. Now, Squibb has it on the market, but it is very rarely used. There is a capsule, a supply of which will be furnished any physician, from which some claim good results, but it is really a useless preparation and I am simply referring to it to condemn it. Then there is the German product, synthalin, which definitely lowers blood sugar, but being a guanidine derivative, it has the disadvantage that it is known to be likely to produce serious gastro-intestinal disturbances. I am not doubting Dr. Bertucci's findings, as many other products will often do what he claims for this preparation. He showed us his good results; I would like to ask him to tell us, in closing, whether or not he did have failures in some of his cases.

In regard to pathology, to which Dr. Eustis referred, a great deal has been written about pathologic findings in diabetic patients who have died from trauma independent of their (severe) diabetes and no pathology was found in the pancreas, the islets of Langershans appearing normal. I lean more to the view that much of diabetes is due to faulty liver function, failure of the glycogenic portion properly to store or, as has been suggested, the primary trouble may be in the nervous mechanism controlling this function.

Dr. D. C. Browne (New Orleans): Insulin certainly does not offer an ideal method of handling the diabetes mellitus case, otherwise we would not be going through cycles of trial and error with various vegetable products. Dr. Bertucci's presentation represents another sincere effort to develop a more practical and safe method of treating the diabetes case. I would urge that a more careful study of the pharmacology of this product be made. A striking feature of the charts presented is that in

no instance do the blood sugar curves go below the normal. Its action is certainly not insulin-like and I am wondering whether it has any influence on pancreatic function or might not its reported action be related to liver metabolism.

Dr. Emile A. Bertucci (in conclusion): I want to answer Dr. Herold in regard to the synthalin product. It is dangerous to handle. It is one which is synthetically produced and differs from this vegetable concentrate, in that you can give as much of the vegetable concentrate as you desire and will not produce any harmful effects of significance. The animal experiments on dogs as brought out in my paper, has convinced me of the safety of my product.

In regard to the percentage of cases benefited by cardellyn, I want to say that in all cases of children in which I used cardellyn, did not respond, and this I believe was due to true organic disease of the pancreatic cells, which could not possibly be brought back to normal functioning, and therefore insulin became imperative. In cases of the adult type below the age of 40, I had some difficulty in lowering blood sugar, and I seemed to have better success in patients above the age of 40. I claim results in the senile type of diabetes, through the stimulation of the functional processes, where there is a malfunctioning of the pancreas and also of the glycogenic function of the liver, interferring with the proper hormonic balance. I have had 100 per cent success in all cases in which the pancreas was not organically impaired. Cases in this class who had been taking insulin for years as high as 60 units daily, and who had been told by their physicians that they would have to take insulin for the rest of their lives, were taken off insulin and their blood sugar restored to normal.

In answer to Dr. Strong, so far as yeast is concerned, we all know of the presence of vitamin B in yeast, and much talk concerning this vitamin in relation to its action in the therapeusis of diabetes in which there may be a vitamin B deficiency. There is a liquid preparation on the market containing this vitamin, and I personally believe that certain vitamins play an important role in this disease. Cardellyn is rich in vitamin B and it may be one of the agents that is responsible for such marvelous results.

Dr. Brown inquired as to hypoglycemic reactions. Cardellyn given to normal persons will not produce a hypoglycemia. It tends to stabilize blood sugar. I have given it to individulas with normal blood sugar for months and it did not affect it. Therefore there is no danger from hypoglycemic reactions from the use of cardellyn.

NEW ORLEANS
Medical and Surgical Journal

Established 1844

Published by the Louisiana State Medical Society under the jurisdiction of the following named Journal Committee:

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News material for publication should be received not later than the twentieth of the month preceding publication. Orders for reprints must be sent in duplicate when returning galley proof.

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Manuscripts should be addressed to the Editor, 1430 Tulane Avenue, New Orleans, La.

NEW ORLEANS POST-GRADUATE MEDICAL ASSEMBLY

The plans for the New Orleans Post-Graduate Medical Assembly to be held March 8-11, 1937, are being pushed actively and energetically. The officers are working diligently and faithfully, so that the magnificent scientific program is virtually completed.

A preliminary program has been sent to most of the doctors in the far South. To those who have not by chance received these programs or who have not read them it might be said that the list of speakers is made up of many men distinguished in the medical pofession. Dr. Ralph A. Waters, Professor of Anesthesia at the University of Wisconsin Medical School, will discuss anesthesia. In the ear, nose and throat field the talks will be given by Dr. Albert C. Furstenberg of the University of Michigan Medical School. One of the best known men in gastro-enterology, Dr. Anthony Bassler, will deal with gastro-enterologic subjects. In gynecology Dr. George G. Ward of New York will present several interesting papers. Dr. Russell Cecil, Professor of Medicine at Cornell University Medical College and author of a well known textbook, will present the medical features of disease. He will be joined by Dr. George M. Piersol, Professor of Medicine at the Graduate School of the University of Pennsylvania and an editor of distinguished reputation. The monumental work which has recently appeared in thirteen volumes, "The Cyclopedia of Medicine," was prepared under his editorial supervision. The placing of Dr. Piersol on the program is one of several additions that have been made by the Program Committee.

In neurology Dr. Lewis J. Pollock, Professor of Nervous and Mental Diseases, Northwestern University Medical School, will give instruction in his particular specialty. The Professor of Obstetrics and Gynecology at Cornell University, Ithaca, Dr. H. J. Stander, will be the representative on the program to discuss obstetrical problems. Ophthalmology will be represented by Dr. Clifford B. Walker of the University of Southern California School of Medicine. One of the truly great orthopedic surgeons, Dr. Robert B. Osgood, formerly Professor of Orthopedic Surgery at Harvard, will have several papers on this branch of surgery. Dr. John A. Kolmer, well known for his modification of the Wassermann reaction and the author of several books, will discourse on the relationship of pathology to medicine. In pediatrics Dr. Julius Hess of the University of Illinois College of Medicine and one of the best known pediatricians in the country, will give several talks on the care of the infant.

A representative of the U. S. Public Health Service and National Institute of Health, Dr. Rolla E. Dyer, is extremely well qualified to

talk on his subject, preventive medicine. The same may be said of Dr. Eugene P. Pendergrass of the Hospital of the University of Pennsylvania School of Medicine, a delightful talker and an able student of radiology. Dr. William Babcock, Professor of Surgery at Temple University School of Medicine, needs no introduction to the medical profession. The author of one of the outstanding surgical textbooks, he is a man who presents his subject clearly and intelligently. Surgery will be further represented by Dr. Hugh Trout of Roanoke, Virginia, one of the most prominent surgeons of the South, while Dr. Meredith Campbell of New York City will discourse on urologic surgery.

Reviewing this list of speakers it will be difficult indeed to find more perfect representatives of the various divisions of medicine in this country, both as men of renown and teachers of quality. The information and instruction that these men will give will be undoubtedly unequaled by any group during the coming year. These men will present not only formal lectures but will enter into round-table discussions, will take part in symposia and will give clinical demonstrations.

RESEARCH STUDIES

One of the outstanding research organizations in this country is the Society for Experimental Biology and Medicine. In abstract form are presented in their regular publication a very large number of studies of a research and laboratory nature. By far the great majority of these observations are of rather remote clinical implication and they are not intended for a man who believes only in things practical. However, in perusing the pages of any one of their issues there may be found a not inconsiderable number of problems whose solution gives a distinct clinical lead. Thus for example a paper by Daniels and Everson[1] showed that aspirin increases the excretion of vitamin C. This is of distinct importance clinically because subacute scurvy is by no means uncommon when salicylates have been given to children who have need for this drug. It is obvious that to these children should be given an increased ration of orange juice or tomato juice. Another presentation by Robson[2] shows that testosterone inhibits the oestrus cycle. This observation may be of importance in future years as a method of controlling too frequent menstruation. Incidentally in the study, injected female mice were placed with males and no mating was observed. Here again the implications are obvious.

An interesting research, which has a therapeutic thought, is that of Evans and Bowie[3] who found that in rats either depancreatized or else phloridzinized, cardiac glycogen is not materially affected by either of these two procedures. They believe that heart glycogen is under different control than that of the skeletal muscles. From their observations it may be assumed that glucose by vein is unnecessary in patients with high blood sugar, and possibly in patients with low blood sugar the injection of sugar by vein is of no material value to the heart muscle. In still another research West and Burget[4] found that sorbitol, a non-toxic, very cheap hexahydric alcohol which is rapidly excreted by the kidneys after intravenous injection, has enormous water binding capacity. From these observations it is very easy to deduce that this preparation might easily hold promise of a remarkable diuretic action in patients in whom diuretics are indicated, as in congestive heart failure. A fifth investigation conducted by Lilienfeld, Wright and MacLenathen[5] had to do with the intramuscular injections of ascorbic acid and its excretion in sweat. They showed that this preparation may be given intramuscularly without injury to tissue. It is used by the body tissues when there is ascorbic acid lack. It follows, therefore, that when there is vitamin C deficiency through inability of the gastrointestinal tract properly to absorb cevitamic acid and when the intravenous administration is not practical that vitamin C may be given to the child intramuscularly and with excellent effect.

1. Daniels, A. L. and Everson, G. J.: Influence of acetylsalicylic acid (aspirin) on urinary excretion of ascorbic acid, Proc. Soc. Exper. Biol. & Med., 35:20, 1936.
2. Robson, J. M.: Inhibition of oestrus and of the vaginal response to oestrone by testosterone, loc. cit. p. 49.
3. Evans, G. and Bowie, M. A. Cardiac glycogen in diabetic animals, loc. cit. p. 68.
4. West, E. S. and Burget, G. E.: Sorbitol as a diuretic, loc. cit. p. 105.
5. Lilienfeld, A., Wright, I. S. and MacLenathen, E.: Intramuscular injections of ascorbic (cevitamic) acid and excretion in the sweat loc. cit. p. 184.

NEW DEAL ECONOMICS

Two recent editorials in the local New Orleans press deserve some comment. It should not be inappropriate to point out first that the laity is sufficiently interested in medical problems to have editorial comment on these problems in their daily journals.

The Times-Picayune editorial points out that there are two great schools of medicine in Louisiana but that many persons travel the breadth of the state for proper diagnosis and treatment. If the populace as a whole were educated to the need of good hospital service a considerable expense would be saved patients. Regular medical examinations are being used generally but in spite of that fact hospital care is not generally employed, possibly on account of expense.

The second editorial in the Item comments upon what one of the Washington political observers writes, to the effect that the American Medical Association will soon end up in a fight with the President, who is reported to have in mind certain measures for cheapening medicine. This editorial is not at all fair. It says that in many of our large cities medicine has been cheapened by the physicians themselves against the desires of the American Medical Association. It remarks further that the American Medical Association would be better off if it recognized that its official opinion is not that of a great many of its own members. It might be said that this is more or less a foundationless statement because the American Medical Association represents the rank and file of the members, certainly those physicians who have cheapened medicine in cities such as Los Angeles and Seattle have done so very much against the feelings of the great body of medical men in this country.

These two editorials should keep alive in the minds of doctors the fact that the lowering of medical fees and the giving of any service cheaper than is being done now may become a more acute problem than it seems to be just at this moment. Undoubtedly the laity are becoming conscious of the costs of medical care and undoubtedly with the overwhelming majority that President Roosevelt has back of him he in turn may undertake, through the plea of social security, measures which may be the entering wedge, if not actually the beginning of state medicine. If the medical profession wants state medicine, well and good, but this is very doubtful. To the great majority of the men with whom we come in contact such an idea and thought is repugnant. The medical profession wants to maintain its individuality, the control of its professional standards and measures of practice.

HOSPITAL STAFF TRANSACTIONS AND CLINICAL MEETINGS

SHREVEPORT CHARITY HOSPITAL

Following a banquet the Staff meeting was opened by Dr. Mathews at 8:00 P. M. on October 1, 1936. The following members were present: Drs. C. H. Potts, Joe Verser, J. M. Bodenheimer, R. B. DeLee, S. G. Wolfe, W. H. Browning, L. H. Pirkle, H. A. Robinson, L. A. McConnell, M. M. Longino, H. M. Sims, Trifon, W. R. Mathews, Paul E. Winder, C. R. Mays, V. P. Blandino, Cohenour, Battle, Corrigan, T. M. Oxford, D. R. Isom, Duke H. Prothro, J. H. Dickinson, W. M. Scott, E. L. Sanderson, R. T. Lucas, G. H. Cassity, Charles R. Gorman, Leon F. Gray, F. B. White, W. E. Crumpler, Jr., D. B. Daniel, J. B. Askew, J. R. Stewart, E. L. Wenk, J. A. Wilkinson, L. Sanders, Clifford W. Crain, O. O. Jones, H. W. Boggs, G. F. Weber, F. E. DePriest, D. H. Byram, and L. M. Vaughn.

Dr. Sanderson urges that we continue to improve our organization so that we may compete with the Charity Hospital in New Orleans, notwithstanding its financial backing. He suggests that we spend less time trying to increase the quantity of our work and then more effort toward improving the quality of the work will be done. Dr. Sanderson stresses the importance of Clinical Pathological Conferences and Clinical Conferences. He encourages that all members of the staff make an effort to attend these conferences. He stated that many patients who are able to pay doctors bills are now in the Hospital. He asked the cooperation of all staff members to keep these patients out of the Hospital so that these beds may be filled with deserving patients. He also asked for any suggestions regarding the running of the Hospital. Dr. Sanderson asked all members to cooperate in keeping down the expenses of the Hospital. He expresses appreciation of their work for the past year and wishes them success in the coming year.

Following Dr. Sanderson's announcement, the election of officers was held. Dr. Gowen was elected chairman of the staff, Dr. Cassity was elected vice-chairman, Dr. George Wolfe was elected secretary-treasurer. At this time the meeting was turned over to the new officers.

The incoming president, Dr. Gowen, expressed the hope that the same high calibre of scientific programs, so characteristic of the Charity Hospital staff meetings, be maintined. In this connection, he is to appoint a Program Committee after due consideration.

Various suggestions for improvements in services were offered by various members of the staff. Dr. Cassity suggested that facilities for the examination of gynecological patients be improved, namely, that a special table equipped with stirrups be acquired; that proper illumination be provided; and that equipment be furnished, enabling the operator to do cervical cauterizations in treatment rooms on the wards. He pointed out that in this way, many patients who needlessly go to the operating room, could be just as adequately cared for on the ward, thereby lightening the operating room schedule and making it more convenient for all concerned.

Dr. Mathews presented a case of a colored man, aged 39, complaining of jaundice. His mother had died of jaundice. The present illness consisted of pain in the right upper quadrant, fever, chills, edema of ankles, dyspnea, bloody urine, and pale stools. The examination revealed the jaundice and edema, a tender and large liver, and a palpable spleen. The urine contained no bile and the blood studies were not significant apart from the marked secondary anemia. Splenectomy was performed, but the patient died some five weeks after operation of a septic pneumonia. The possibilities of Banti's disease and hemolytic icterus were considered. The case was discussed by Drs. DeLee and Wolfe, and closed by Dr. Mathews, who pointed out that the micro-pathology of the spleen was consistent with the diagnosis of hemolytic icterus.

S. Geo. Wolfe, M. D., Sec.

STAFF MEETING
CHARITY HOSPITAL

October 20, 1936

After a splendid banquet, the members of the Staff gathered for a scientific meeting on October 20, 1936,, with the following members present: Drs. Scott, Kerlin, LeDoux, Rowland, Knighton, Jr., Winder, Shavin, Mays, Blandino, Thomas, Oxford, McConnell, Longino, Boone, Daniel, Verser, DePriest, Corrigan, Potts, Edwards, Lucas, Gowen, Dickinson, Sims, Crimpler, Askew, Wink, Boggs, and Wolfe.

The meeting was opened by Dr. Gowen, in the chair, who called on Dr. Edwards for a very interesting report on his recent visit to The Post Graduate Tumor Clinic. Dr. Edwards made mention of many new and ingenious ideas and methods of irradiation therapy. Dr. Maston Scott reported on his recent visit to the convention in Minneapolis. He also brought out many new and valuable pointers.

Beginning with this meeting, the Hospital report was reviewed and revealed that during the month of September, there were 2,481 admissions, 2,453 discharges, 101 deaths, 11 autopsies, 155 births, and 1,282 operations. The very low autopsy percentage was deprecated.

Dr. Gowen indicated that the reading of the Hospital report would be a monthly feature of the meetings in the future. The Program Committee, appointed by the president, was as follows: Dr. Charles Boone, Chairman; Dr. Dickinson, of the Medical House Staff; Dr. McConnell, of the Surgical House Staff; and Drs. Gowen and Wolfe, members ex-officio.

Three interesting cases were next presented: the first by Dr. Dickinson was that of an elderly man who presented multiple small, fluctuant, freely movable, painful, tumescences, confined to the joint regions of the extremities. Speculation as to their nature was cleared up by a biopsy report which revealed the condition to be gout. Next, Dr. Mays and Dr. Boggs presented a case of macrocytic hyperchromic anemia of pregnancy. Dr. Mays pointed out that, although this condition is considered rare, this case is the third which has fallen to his attention in the wards of the Hospital. He also pointed out the similarity between this disease and pernicious anemia, but, at the same time, indicated some of its differences, namely, that free hydrochloric acid may be present in the primary anemia of pregnancy, that the disease terminates with the pregnancy, and that this disease, as associated with pregnancy, is more severe and is more apt to terminate fatally in the absence of vigorous treatment with liver extract. He further pointed out that infants born of these mothers, are more apt to show severe secondary anemia than are those born of normal mothers. The third case was that of an eleven year old colored boy, who, after a short febrile illness with chills, developed bilateral symmetrical gangrene of the feet and ankles. The nature of his disease was admitted to be most obscure, but in the face of an elevated blood pressure, Dr. Wolfe suggested that a sympathetic-parasympathetic imbalance was at fault. The presence of malarial parasites in the blood was considered to be incidental and not of primary etiology.

S. G. Wolfe, M. D., Sec.

SCHUMPERT SANITARIUM

On October 13, 1936, after dinner in the Sanitarium dining room, the Staff assembled at the

call of Dr. George Garrett. Roll call showed 21 members and four visitors present. A letter of application for membership by Dr. R. B. DeLee was read, and the application referred to the proper committee.

(1) Captain M. S. White of Barksdale Field gave a discussion of "Aviation Medicine." He dealt first with the selection of pilots, showing that the trend was away from the "superman" tradition of spectacular aeronautics, the present purpose of the entrance examinations being to choose those men who are so equipped that they will not retard the classes. Normally, it has been found that only 10 per cent of applicants are accepted. Many fail on the eye examination, 20/20 vision being required and 20/15 being nearer the optimum. Much difficulty has been found in testing for night blindness, an important finding. Color testing was also emphasized, Captain White pointing out that 8 per cent of the male population was found to have color blindness by the better tests. Ear defects, equilibration and other phases of the physical examination were dealt with.

Captain White stressed the psychiatric examinations, showing that careful attempts to eliminate the poorly adjusted individuals are very essential. Somnambulism, stuttering, prolonged enuresis and other possible epileptic equivalents were found to be more frequent in the past history of pilots who cracked up than in others.

Various research problems connected with the examinations and with such new developments as high altitude flights were discussed.

Discussion of Captain White's talk and questions were engaged in by Drs. Edwards, Atkins, Wren and Cassity.

(2) Drs. Chapman and Boyce presented a case report concerning a 14 year old white boy who became ill with initial cerebral symptoms, including headache, fever, leg pain and stiff neck. A tentative diagnosis of poliomyelitis was made after a spinal fluid cell count of 820 cases was secured, but later the diagnosis was changed to embolic abscesses of the thoracic and lumbar vertebrae, with extra and intradural extensions. The diagnosis was confirmed on operation and laminectomy of the tenth thoracic to third lumbar vertebra was followed by progressive improvement.

A discussion of deaths during the past month ensued; first, carcinoma of the cervix with fatal pneumonia following radium therapy, discussed by Dr. Edwards; a case of ruptured appendix and general peritonitis in a 12 year old child, by Dr. Wren; and pre-eclamptic toxemia complicated by bronchopneumonia, by Dr. Winder.

C. H. Webb, M. D., Sec.

TRI-STATE HOSPITAL

The Staff meeting was called to order on October 22, 1936, by Dr. J. E. Knighton Sr., with 21 members and two visitors present. After disposal of the routine business the following scientific program was presented:

The first case, presented by Dr. W. S. Kerlin, was that of a white female aged 59, giving a history of attacks of precordial pain for the past five years, which begin over the precordium, radiating to the left shoulder and down the arm. The patient also has frequent gallbladder attacks and has taken much morphia for relief of pain. She is very nervous and restless and has lost 60 pounds in weight. He teeth were removed in April but a plate has not been obtained. Further questioning of the patient brought out the fact that the pain frequently begins in the left shoulder and later she says the pain is present there most all the time. This case was presented to bring out the importance of obtaining a complete history from a patient. The physical examination revealed a heart normal in size and shape, sounds good, with an occasional extrasystole. Otherwise the examination was negative except for some atrophy of left shoulder muscles, moderate tenderness over the gallbladder area and three plus pus in urine. Roentgen ray of the left shoulder revealed marked calcification of sub-acromial bursa with some damage to the head of the humerus. A flat plate of the gallbladder was negative; no concentration of dye. Electrocardiogram showed no abnormalities. It was concluded that the diagnosis of angina pectoris made elsewhere five years ago was erroneous, and that all the symptoms were secondary to the bursitis. The case was discussed by Drs. Jones, Knighton Jr., Durham, Willis, Sr. and Knighton, Sr.

The second case, presented by Dr. W. B. Worley, was that of a baby boy 13 months of age who was perfectly normal until present illness which began on July 21. The mother's first observation was the passing of dark feces, which occurred several times and presence of blood easily determined grossly. The baby had been taking feedings normally with no vomiting. Physical examination showed a patient distinctly pale. More blood was passed during the rectal examination which was negative, and the abdomen was soft. A laparotomy was done which revealed an intestinal tract full of blood, no gas, and a diverticulum in upper ileum with bleeding from ulcer in diverticulum. The pathologic lesion was removed and the patient improved for several days, when the abdomen became distended and vomiting began. A colostomy was done and the patient improved for seven days then became worse again. He improved but all of the feces continued to pass through the colostomy. A barium enema and meal

were given for roentgen ray observation. Soon after this he began to have normal bowel movements and went home. One week later the patient returned for roentgen ray check, was feeling much better, gaining in weight but with a very large abdomen. Roentgen ray revealed a markedly dilated terminal ileum. Drs. Jones, Webb and J. M. Gorton discussed the case. It was the concensus of opinion that post-operative adhesions produced partial obstruction of the ileum resulting in the enormous dilatation of this portion of the intestine.

D. B. Daniel, M. D., Sec.

THE NORTH LOUISIANA SANITARIUM

The North Louisiana Sanitarium Staff meeting was called to order by the president with 20 members present. After disposal of routine business attention was turned to the scientific program.

Dr. Hargrove reported a case of advanced Addison's disease in a negro, 40 years of age, and passed the postmortem specimens of the adrenals around. The adrenal glands showed extensive tuberculous involvement. The patient's history presented all the symptoms of a hypofunctioning adrenal gland, asthenia, low blood pressure, dehydration, nausea and vomiting, and pigmentation of the buccal mucosa. The case was discussed by Drs. Herold, Gowen and Rigby.

Dr. Herold reported a case of malignant gastric ulcer that had its onset in 1925. Since that time the patient has been under the usual ulcer regime. In 1934 Dr. Heard and Dr. Herold strongly advised surgery but the patient refused operation. Two months ago, due to very annoying symptoms, another gastrointestinal roentgen ray was done and Dr. Anderson expressed the opinion of a malignancy grafted on the ulcer. The patient agreed to surgery this time. Dr. Heard described the operation. An anterior gastro-enterostomy and jejuno-jejunostomy were done, due to a short mesocolon, making it impossible to do the preferable posterior gastro-enterostomy. A gland taken from the region of the ileum showed signs of malignancy and inflammation. No other metastases were found. The patient to date is doing nicely.

Dr. Googe presented a case of malarial hematuria.

H. M. Trifon, M. D., Sec.

THE SHREVEPORT EYE, EAR, NOSE AND THROAT SOCIETY

The Shreveport Eye, Ear, Nose and Throat Society met in regular session at the Charity Hospital, the evening of Monday, November 2, 1936, at 7:30 o'clock. The president and vice-president being absent, the secretary, Dr. J. A. Wilkinson, presided. The following members were present: Drs. John L. Scales, Claude LaRue, John T. Crebbin, W. L. Atkins, I. Henry Smith and J. A. Wilkinson.

Dr. LaRue presented a case of internal strabismus, a young lady, on whom he had done a tenotomy of the left internal rectus. She had been fitted with glasses and the cosmetic effect was very good, though there still remained a slight turning in of the left eye. It was the concensus of opinion that no further operative procedures should be undertaken at this time. Dr. LaRue was congratulated on his splendid results obtained.

Dr. Crebbin presented a negro man on whom he had done a Denker operation on the left maxillary sinus. The incision had failed to heal and there was a profuse foul smelling discharge of pus coming from the wound. He also had a draining fistula low down on the left cheek. It had not been determined if this was in any way connected with the sinus infection. The patient's blood showed a positive Kahn. It was suggested, after cleansing that the wound be packed with gauze strip saturated with bismuth and tincture benzoin compound.

Dr. Crebbin presented another case of a colored man who had a carcinoma of the left alveolar ridge and antral wall. This developed rather rapidly following the extraction of some teeth.

Dr. Atkins presented a white man with an external fistula of the right sub-maxillary gland. The patient gave the history of having had a stone removed through this opening some months ago, since which time it has drained continuously. It was decided that complete dissection of the gland offered the only hope of cure.

Dr. Atkins presented a second case, a white man had a subacute mastoiditis. Since his hearing was good and there were no symptoms demanding an immediate operation it was thought best to postpone operating.

Dr. Wilkinson presented a young white man who had a severe chronic conjunctivitis and blepharitis. Two laboratory tests were negative for all micro-organisms. Practically all known local treatments had been exhausted. Dr. LaRue suggested a smear be taken for an eosinophile count. looking to the possibility of allergic condition.

There being no further business to come before the society, the meeting was adjourned until the first Monday in December.

Dr. L. W. Gorton, Pres.
Dr. J. A. Wilkinson, Sec.

FRENCH HOSPITAL

A regular meeting of the French Hospital Staff was called to order Friday, October 9, 1936, at 8:00 P. M. The minutes of the last meeting were read and approved. The deaths which occurred during the month were discussed generally.

Dr. Stadiem presented a very interesting paper on the "The Clinical Application of the Friedman

Test in Pregnancy and Other Conditions." Dr. Stadiem reviewed briefly the historical aspect and physiologic action of the test. In a series of 315 cases Dr. Stadiem has found that the test gives better results if done 15 days after the last period of menstruation. Rabbits are opened 48 hours after 20 c.c. of urine has been injected into the marginal vein. The test should never be used as the sole basis for pregnancy.

These give false-positive proofs: 1. Adenoma of pituitary; 2. granulosa cell tumors; 3. teratoma; 4. certain states at the menopausal age.

The following give positve reactions: 1. pregnancy; 2 ectopic pregnancy, and 3, chorio-epithelioma.

Dr. Harris, in commenting on Dr. Stadiem's paper, spoke of a case which was negative at 48 hours but positive at 72 hours. Another case showed a positive test in one ovary and a negative on the opposite side. The test is not as accurate for ectopic as it is for uterine pregnancy.

Dr. Harris requested Dr. Thomason to discuss an interesting case in which three Friedman tests had been done. Dr. Stadiem opened a rabbit to illustrate a positive Friedman test. Dr. Harris closed the discussion by saying that the name Friedman test is used instead of Ascheim-Zondek.

W. R. Strange, M. D., Chairman.

A regular meeting of the French Hospital Staff was called to order with Dr. Strange presiding November 17, 1936.

The death of patient M. E. S. was discussed by Dr. Ciolino, in the absence of the attending physician. The patient was operated on for a subacute appendicitis. No cardiac lesion could be found pre-operatively, at least, clinically. The second post-operative day the patient began vomiting and a distention of the upper abdomen was present. Her pulse was 90 to 120 but it was found to be rather fast in the beginning, being 116 on admission. The third post-operative day the vomiting continued and the patient became cyanotic. A partial postmortem was performed and the peritoneal cavity found normal throughout. A possibility of pulmonary embolism was considered.

Dr. G. C. Battalora then read a very interesting paper on the "Management of Common Foot Disorders". He briefly reviewed the anatomy and physiology of the foot and discussed more fully pronation, anterior metatarsalgia, hallux valgus, calcaneal spurs, corns and callosities. He stated that pronation is a very common deformity occurring in 90 per cent of individuals. Pronation is due to abduction and eversion of the foot. Treatment consists of a wedged-shaped lift placed inside the heel portion of the shoe. This appliance is thicker along its inner edge, runs forward and tapers to a feather edge along its external portion. It covers four-fifths of the width of the shoe heel. The thickness of the pad varies in each individual case. Correction of footwear is absolutely essential, as well as exercise of the foot.

Anterior metatarsalgia is treated by correcting the pronation and the use of some device to elevate the anterior arch. This simple procedure removed pressure from the metatarsal heals and puts it behind them.

In hallux valgus in cases with slight deformity, relief may be obtained by correcting pronation and using a shoe with a very wide forefoot portion. Excision of the exotosis may be necessary. In cases with marked deformity, resection of the metatarsal head and the inter-position of a fascial flap is necessary.

Calcaneal spurs, which produce pain, have been treated beneficially with the infiltration of 1 per cent novacain solution and 2 c.c. of lipiodol solution. A second injection may be necessary.

Corns and callosities are treated by wearing a shoe sufficiently roomy to prevent pressure of the painful areas and the application of bichloracetic acid with paring away of the horny skin at five day intervals.

Dr. Battalora closed his paper by stating that most of the static disorders of the foot are due primarily to one basic deformity, pronation.

On behalf of the staff Dr. Strange thanked Dr. Battalora for a most interesting and beneficial presentation.

Dr. Strange then reqeusted that in the future all consultants make a written report of their findings to accompany the patient's chart, before discharging the case.

E. A. Baitchman, Assist. to Secty.

HOTEL DIEU

The regular monthly meeting of the Staff of Hotel Dieu was held on Monday, October 19, 1936, at 8:00 P. M. in the Nurses' Lecture Room of Hotel Dieu.

The meeting was called to order by the President, Dr. E. H. Walet, and with the Secretary, J. A. LaNasa, at the desk.

The Scientific Program consisted of:

a. "Banti's Disease" by Dr. Ruth G. Aleman. Discussed by Drs. Levin, Landry, Jamison, and Levy.

b. "The Early Nursing Care of the Leper" by Dr. T. J. Dimitry.

c. "An Interesting Case of Giant Duodenum" by Dr. A. L. Levin. Discussed by Dr. Salatich.

A recess of one minute was ordered by the Chairman after which the meeting resolved into Executive Session.

TOURO INFIRMARY

On Wednesday, October 14, 1936 at 8 P. M. the first regular meeting of the Touro Infirmary

Medical Staff since summer vacation was held. Dr. Urban Maes presided.

The customary clinico-pathological conference was ably conducted by Dr. John Lanford. Two cases were presented and discussed. The first was one of acute and chronic nephritis, streptococcal lymphangitis with elephantiasis of both lower extremities, sero-fibrinous pericarditis and cardiac failure. This case was discussed by Dr. J. D. Rives, and, following the presentation of the autopsy material, by Drs. Wirth, Lemann, and Lyons. The second case, discussed and analysed by Doctor Lemann was one of carcinoma of the left ovary with seeding of the peritoneum, pelvis and transverse mesocolon, hypertrophy of the heart and terminal lobular pneumonia.

Lupus vulgaris was discussed briefly but adequately by Dr. J. K. Howles who showed one case of lupus vulgaris, positive histopathologically, developing into basal cell epithelioma, and two cases of lupus erythematosis. These cases were discussed by Dr. Oriol.

An interesting presentation of two cases of streptococcal septicemia of otitic origin with recovery following mastoid operation was then given, one case by Dr. Weil and the other by Dr. Kearney. Drs. Bayon, Anderson, Rodick, Bloch, Crichlow and Lemann discussed most of the aspects of this problem.

Willard R. Wirth, M. D.

J. T. NIX CLINIC
NEW ORLEANS

At a meeting held in November the following paper was presented by Doctor Manuel Garcia.

CARCINOMA OF THE RECTUM IN YOUNG ADULT:
A CASE REPORT

That carcinoma of the rectum must be suspected in every person past middle age with symptoms referable to the lower bowel, is a respected clinical maxim deserving more extended observance in actual practice. But that these complaints, especially bleeding from the anus, may be signs of rectal cancer even in the young, is a warning almost universally ignored. The tragic sequel of such neglect is well exemplified in the case reported here:

Mr. C. M., a white male, 31 years old, was seen August 16, 1935. For a year he had been under treatment for recurring attacks of diarrhea and bloody stools which had been diagnosed colitis. He had grown gradually worse and had lost weight. His general nutrition was good; weight, 130 pounds; temperature, 99.2°; pulse, 84; blood pressure, 120/80. The head, chest and abdomen showed no indications of pathology but digital examination of the rectum disclosed a friable mass about six centimeters from the anus, bleeding on manipulation.

On August 17, 1935, biopsy showed adenocarcinoma, type III with secondary subacute inflammation and necrosis (Dr. M. Couret, pathologist.) The mass involved almost the entire circumference of the bowel, was papillary and friable, and extended upwards beyond the retrosigmoid junction. Because of the age of the patient and the extent of the growth it was decided that radiation rather than surgery was indicated. A permanent colostomy was done in three stages by Dr. J. T. Nix and when the patient was convalescing he started to receive daily, high voltage roentgen treatments. The total does was 6000 r's given through two portals and directed to the rectal lesion. He was discharged from the hospital September 24, 1935. He improved generally, the colostomy functioned well, rectal bleeding stopped and he gained weight for the next month. On November 9, 1935, he was re-admitted and 62.5 mgms. of radium were placed in a rubber tube in contact with the rectal tumor and left *in situ* for forty-eight hours. The tumor had become very fibrotic and had nearly occluded the lumen of the rectum. The patient continued well for several months. From January 21, 1936, to February 6, 1936, he received roentgen radiation through abdominal, perineal and sacral portals, 800 r's being given to each. His general condition remained good until April when he began to complain of weakness and sleeplessness. From April 15, to April 26, 1936, he started to receive additional radiation but it was discontinued because slight bleeding showed at the colostomy opening. He became bedridden and developed a cough. On May 21, 1936, he was admitted to the hospital with a history of a sudden, profuse hemorrhage through the colostomy opening. Almost immediately he was given 250 c.c. of blood by the indirect method, using a brother as the donor. His condition rapidly grew worse and he expired May 22, 1936.

Autopsy showed matting of intestines in the pelvis and extensive infiltration of the bladder. A large mass was present in the sigmoid. This mass was adherent to the caput coli and a loop of the ileum 10 cm. from cecum. Localized peritonitis indicated leakage in this area. The rectum and lower sigmoid contained a large, dense mass which compressed both ureters and had infiltrated and eroded the wall of the right iliac artery at a point where an intestinal loop was attached, causing a massive hemorrhage into the gut. The entire colon was filled with blood. Metastases were present in the retroperitoneal nodes, the liver and the lungs.

The final diagnosis was carcinoma of the rectum with regional, hepatic and pulmonary metastases, and localized extension with perforation into the right iliac artery, causing fatal hemorrhages. Mechanic hydronephrosis was found.

SUMMARY

A case of carcinoma of the rectum is reported which had been allowed to progress to a hopeless stage because of failure to perform a digital rectal examination. Though rectal cancer is relatively infrequent in the young, every patient should be given the benefit of a rectal examination in the presence of rectal bleeding.

HUTCHINSON MEMORIAL CLINIC

Symposium on Uterine Bleeding: Conducted by the Department of Gynecology, Dr. Hilliard E. Miller presiding.

Functional Bleeding of Puberty—Dr. Conrad G. Collins: Functional bleeding of puberty is a condition encountered in young women between the ages of ten and twenty years, characterized by an increased bleeding at the time of menstruation or an increased frequency of bleeding. This bleeding may occur anywhere from one to three weeks apart and last from eight days to four months. It is due to a lack of the luteinizing hormone which in turn is reflected in the endometrium.

In the normal menstrual cycle the premenstrual endometrium shows a secretory as well as proliferative change but due to the lack of luteinizing hormone the endometrium shows only the proliferative change. When this proliferation goes on to an abnormal degree a condition of hyperplasia results.

Where formerly surgery and radium were used in the treatment of puberty bleeding, at present we are using the luteinizing hormone with good results. The dosage given is 1 c.c. per day for five days, repeated every twenty-four to twenty-eight days for three series. We have obtained 90 per cent results with this mode of therapy, very few patients needing surgery or curettage.

Slides were shown demonstrating early proliferative endometrium, late proliferative endometrium, early differentiated endometrium, late differentiated endometrium and hyperplasia of the endometrium.

Uterine Bleeding Associated with Abortion—Dr. Eugene Countiss: Incomplete abortions with continued uterine bleeding are those most often encountered by physicians. If portions of placenta are retained, there is frequently a proliferation of epithelium covering the chorionic villi, rarely producing a chorioepithelioma, or the syncytium may remain embedded in the uterine mucosa, the residual remnants giving rise to so-called placental polyps.

The most common post-abortive local complication is subinvolution with changes in the endometrium, at times referred to as endometritis, giving rise to bleeding, menstrual irregularitis, cramping pains in the lower abdomen and backache.

Among the direct placental causes of abortion and subsequent bleeding are infarction, placenta previas, hydatid mole and premature separation. Maternal factors such as heart or kidney disease, tuberculosis, diabetes, pernicious anemia and pyelitis are more often indications for abortions rather than causes in these days of better treatment. External causes are perhaps over-rated, at least by the laity; for example, trauma to the abdomen, falls, shock and coitus.

Syphilis cannot be denied as an etiologic factor in defective germ plasm, but it is undoubtedly more important in accounting for the expulsion of macerated fetuses during the last trimester than in producing abortions at three months.

The well known signs and symptoms of pregnancy are usually available as a basis for the diagnosis, followed by those of beginning labor. Bleeding, irregular as to onset and amount, and lasting beyond the usual time, should lead us to suspect an abortion. The presence of clots and the bright red color will distinguish the bleeding accompanying abortion from the brownish liquid menstrual flow at first.

Pain is as variable as individuals and even bleeding without pain may be the first sign of an impending abortion, completed within an hour or continued for weeks.

Women with menstrual irregularities offer more perplexing problems and their prolonged or excessive menstruation may be our only clue in the history.

In an early abortion we expect to find the cervix softened and its external os slightly dilated. A canal admitting the tip of the index finger, other points being positive for pregnancy, indicates at least an inevitable abortion. Hegar's sign is absent or lessened, the body of uterus is of firmer consistency and there is less angulation between body and cervix, due to contractions. The finding of products of pregnancy in the cervix is of course conclusive evidence.

Words of caution to the patient to save all expelled products, including blood clots, cannot be over emphasized. Examination of this material will aid us in a definite diagnosis and proper study may give a hint as to the etiologic factor. A defective fetus is too frequently overlooked.

A threatened abortion is one with definite sympoms such as malaise, headache, backache and increased frequency of urination. After a day or two, there is usually a vaginal spotting associated with abdominal cramps. This is the type in which we may prevent expulsion of the embryo or fetus and unfortunately even the diagnosis of pregnancy is often difficult. The Ascheim-Zondek or Friedman tests may be utilized to advantage in this type, being accurate in 90 to 95 per cent of cases.

According to Taussig, an inevitable abortion is characterized by either one or all of the following: (1) Considerable blood loss or a bloody discharge prolonged for several weeks; (2) rather severe pains, occurring at regular intervals and of a cramp-like character; (3) dilatation of the cervix sufficient to admit the tip of the finger; (4) a watery discharge indicative of rupture of the membranes, and (5) conclusive evidence of death of the fetus.

Prolonged and profuse bleeding point to retention of placental tissue, the flow ordinarily becoming very scanty two or three days after a complete abortion. When there is retained tissues the flow remains a brighter red and clotted with an increasingly offensive odor after five or six days. There is an increasing intensity and regularity of painful contractions within one hour after administration of ergot, especially in incomplete abortions after the third month.

Once the diagnosis of a complete abortion has been made, the treatment should consist of rest in bed for five to ten days, or until involution is practically complete; an ice cap to the abdomen to ease pain and, at the same time, stimulate uterine contractions; an ergot preparation every four hours for at least four doses and pituitrin for excessive bleeding.

In threatened abortion complete rest is preferred if the patient's economic status will permit. The patient should be put to bed during the next two or three calculated times for menstruation. Mild sedatives are of value where uterine contractions have not begun, but morphine must be given when these are noted and repeated every half hour until effective. Since strong purgatives and enemas often stimulate uterine contractions, only mild laxatives should be employed. Corpus luteum extracts are worthy of trial, particularly prior to the usual time of expulsion in habitual abortion.

If an abortion is inevitable, then our aim should be to hasten its completion, first by medication and then by curettage. Gentle massage of the fundus, hot enemas and quinine will often produce desired results. Gynergen in 0.5 c.c. doses, given intramuscularly and repeated two or three times daily, has a more prolonged and active effect than pituitrin prior to the fourth month of pregnancy.

When there is an incomplete abortion without signs of infection, we must try conservative methods for a day or two and then resort to evacuation by means of the sponge forceps or a curette, using aseptic technic. In the average case, a sharp curette is less likely to injure the uterus and placental remnants are more easily removed.

I have purposely avoided discussing septic abortions in the causation of bleeding, the mechanism being essentially the same as in the other types. As to their treatment, I wish to stress the expectant—ergot, quinine, gynergen, pituitrin—in the febrile cases. The best policy is to observe the patient during at least five days of normal temperature before resorting to active treatment, i. e., removal of retained products with the finger, sponge forceps or dull curette. These cases should never have a cervical pack unless there is profuse hemorrhage uncontrolled by other means.

Uterine Bleeding as a Result of Pelvic Infection —Dr. C. Gordon Johnson: By pelvic infection I am referring to an inflammatory condition, acute or chronic, which has involved the uterus, tubes or ovaries. Uterine bleeding in the form of a menorrhagia or metrorrhagia occurs quite commonly as the result of such infection. The nonspecific infection is most commonly due to the streptococcus, staphylococcus or B. coli, and commonly follows criminal abortions. It extends upward to involve the pelvic organs by means of the lymphatic system.

The incidence of a true endometritis is much less than we believed before 1908 at which time the first knowledge of the menstrual histology of the endometrium was given by Hitschman and Adler. When acute endometritis does occur bleeding is rarely found except in cases in which there is retention of embryonic products. Chronic endometritis occasionally is characterized by a menorrhagia but when it occurs the presence of adnexal pathology is so common that we must question the importance of the endometrial factor.

There is no doubt that disturbances of menstruation occur in the presence of salpingitis or oophoritis. The infection involving the tubes is usually in a chronic stage and may be one of four pathologic conditions, namely a hydrosalpinx, pyosalpinx, hematosalpinx or of an abcess formation which together with the most common tubal involvement gives us the so-called tubo-ovarian abscess. While the pelvic hyperemia, which is always present in these cases, is thought to be the immediate factor responsible for the disturbance there is also reason to believe that this factor produces its chief effect on the ovary and its function rather than on the endometrium, so that bleeding of this type is dysfunctional, that is, due to a combination of anatomic and physiologic factors. Indirectly tubal disease may influence menstruation by distortion of the upper portion of the broad ligament to interfere with pelvic circulation. This in turn interferes with ovulation retarding the luteal cycle and resulting in menorrhagia. Where the infection has involved ovarian tissue, disturbances of ovulation and luteinization usually occur, resulting in disturbances of menstruation. The etiologic factor here is the gonococcus. Where the etiologic factor is a nonspecific organism the disturbed ovarian function is due to

a perioophoritis resulting in adhesions and a greatly thickened capsule. The uterine bleeding which occurs is thus secondary to a disturbed ovarian function, brought about usually because of a failure of ovulation to take place.

In the treatment of these disorders, I shall at this time give a warning against the use of a curette for bleeding in the presence of an acute pelvic infection, as a marked flareup of this condition will often occur. The use of radium is also definitely contraindicated in any case for the same reason.

If one is called to see a patient whose symptoms are that of abnormal bleeding which is associated with an acute pelvic infection, a conservative form of treatment should be followed, that is, complete bed rest, sedation, and if bleeding is severe, the use of ergot or one of its products. Rarely will it be necessary to resort to such means as packing the uterine cavity.

Vaginal Bleeding Caused by Uterine Fibroids—Dr. Curtis H. Tyrone: Uterine fibroids are the most common of all pelvic neoplasms. They are responsible for about one-eighth of all gynecologic pathology. They are estimated to occur in 20 per cent of all women over the age of 35 years. The most common symptom of fibroids is bleeding. This is usually described as a menorrhagia or metrorrhagia; the menorrhagic form of bleeding is by far the most common type of bleeding.

Any discussion of this most prominent symptom of fibroids must be prefaced by a description of the various types of fibroids and a resume of the various theories of their origin. Uterine fibroids are discrete, nodular, usually multiple growths of muscular and connective tissue fibres, the connective tissue proliferation being secondary. Three types of tumors according to their location in or on the uterus are usually termed: subserous, intramural or interstitial, and submucous growths.

We now come to the discussion of the most frequent symptom of uterine fibroids, i. e., bleeding. It is an almost universal belief that all fibroids present this symptom and that sooner or later will bleed regardless of their size, position or rate of growth and if they do not the patient is regarded as an object of congratulation. On account of this fear patients are frequently mishandled and subjected to unnecessary treatment. On the other hand patients carrying dangerous tumors are advised to defer treatment until bleeding does appear.

Bleeding associated with fibroids must be divided into types, namely, dysfunctional and accidental.

Dysfunctional or myopathic bleeding is usually of the metrorrhagic type. It is usually due to disturbed ovarian function or hyperesterinism with the resulting changes in the endometrium as a hyperplasia. If bleeding occurs in the subserous type of growth it is from the very nature of the case fairly sure to be dysfunctional.

Accidental bleeding results from some vascular lesion for which the tumor itself is responsible. Submucous type of tumors most commonly produce this form of bleeding by the actual rupture of tiny vessels between the endometrial surface of the tumor and the endometrium itself. The contractile force of the uterine wall and the corrosive action of the menstrual flow act to fracture the delicate wall of the venous network and this adds volume and duration to the menstrual flow. Another cause of bleeding is the actual increase of endometrial surface produced by these growths, and irritation of two or more opposed submucous growths. Infection of the endometrium with its resulting ulceration and necrosis produces or increases the amount and duration of the abnormal flow.

Practically, however, the mechanics causing bleeding hold true in theory only because fibroids rarely exist singly. Submucous growths cause hemorrhage out of all proportion to their size. A small tumor no larger than a pea often causes bleeding more than a large interstitial or very large subserous growth.

The hemorrhage is often so prolonged and so severe that it causes marked anemia because the blood-forming organs cannot compensate for the loss during the few days of the month in which there is no bleeding.

It has been so often said that if a patient with fibroids passes the menopause without this troublesome symptom she is free of this symptom forever. This is a dangerous belief and after the menopause, bleeding from a fibroid is a grave symptom and must be investigated, however slight the bleeding may be. It may indicate a necrosis of a pedunculated submucous growth. Often it is a sign of a sarcomatous change in the fibroid. Still more frequently it may indicate the development of an adenocarcinoma of the endometrium.

Syphilis as a Cause of Uterine Bleeding—Dr. E. Perry Thomas: Little is known of syphilis of the female generative organs. It is true that the primary chancre and the gross secondary lesions which affect the external genitalia have long been recognized but syphilitic lesions of the endometrium, uterus, tubes and ovaries, though they must frequently exist in a generalized blood borne infection such as this, are practically never reported; and, rarely indeed, is it ever mentioned, either in text-book or lecture, that syphilis is a common cause of uterine bleeding.

There have been, among others, two chief theories to explain the mechanism of bleeding in these cases. One ascribes it to an organic derangement of the ovary and the other to luetic

lesions present in the endometrium. Those cases in which ulcerative lesions of the vaginal mucosa or cervix are sometimes found to be the cause of vaginal bleeding are excluded.

Portis in 1923 reported a case in which he had performed a radical operation for supposed cancer but examination of the specimen revealed a luetic ulceration of the cervix associated with thickening and hyperplasia of the endometrium. No neoplasm was demonstrated and Levaditi stained sections showed a considerable number of spirochetes in the endometrium and wall of the uterus. The patient developed typical secondary lesions of the skin after operation and the Wassermann was strongly positive. This is the only known reported case in which spirochetes have been demonstrated in the uterus in a case of secondary syphilis.

Pichevin in 1905 asserted that not one authenticated case of ovarian syphilis could be found in all medical literature. Since that time, however, at least four unimpeachable cases of ovarian gummata have been reported. These, however, were tertiary lesions which could easily be found upon vaginal examination. There is but one reported case of proven ovarian syphilis in the secondary stage and this is the previously mentioned case of Portis in which a radical operation for assumed cancer had been performed. Spirochetes were demonstrated in the tissue of both ovaries. Ozenne in 1904 reported several cases of abnormal uterine bleeding associated with slight enlargement of the ovaries which responded promptly to antiluetic therapy. These, together with numerous other reported cases of a similar nature are simply assumed cases of ovarian syphilis in which the diagnosis is more a diagnosis of probability than of certainty. However, spirochetes are found as readily in the ovaries and endometrium of luetic fetuses as they are in other organs and it is difficult to escape the assumption that the ovary is involved in secondary syphilis. In the only proved case of secondary syphilis of the ovary, the changes were simply those of chronic inflammation, except for the fact that properly stained sections revealed the presence of spirochetes.

It is difficult to explain this so-called syphilitic bleeding by the changes in the endometrium which have, thus far, been described, but this, because of the scantiness of the material available for study, has been advanced as one explanation for the occurrence of bleeding in syphilitic women.

The other assumption, that the ovary is responsible for syphilitic bleeding, is equally as difficult to prove. It is generally regarded at the present time that uterine hemorrhage, except in those cases of organic disease such as carcinoma, and polypi is of ovarian origin and that uterine hemorrhage is simply the expression of the endometrial response to the ovarian stimulus. It is further assumed by those who incriminate the ovary in syphilitic bleeding that secondary syphilis of this organ is much more common than can be proven. No definite lesion in the ovary, aside from swelling, chronic inflammatory changes, and the presence of spirochetes can be described to account for bleeding of such a nature but in accordance with the general conception of uterine hemorrhage it seems more probable that the ovary and not the endometrium or uterus is the responsible organ in syphilitic bleeding.

There seems but little reason to doubt the causal relationship between hemorrhage and syphilis in known syphilitic women, in whom all other causes of bleeding have been eliminated and all forms of treatment, save antiluetic therapy are futile. However, the term syphilitic bleeding is also used to denote a few cases of uterine hemorrhage in women who show no clinical or laboratory evidence of syphilis but in whom all other causes of bleeding have been excluded and for whom no treatment save arsphenamine and mercurials have been successful. A definite diagnosis of syphilis simply from the response to a therapeutic test in a case of this sort is a dubious one at best but if a diagnosis must be made, syphilis, or better, probable syphilis, certainly appears to be a more logical conclusion than anything else that can be offered. Such doubtful diagnoses are strengthened by the fact that latent syphilis is much more common in women than in men. It is conceivable how an infected woman with no evidence of syphilis can present symptoms of uterine hemorrhage which can be controlled by no other measure save antiluetic therapy. To this dubious class belongs the woman whose history I will now recite:

Mrs. A. S. S., has complained of irregular menstruation since its inception. The menarche began at the age of twelve and her periods from the onset, occurred from one to two weeks apart and were never constant in duration, each time lasting from several days to several weeks. The flow has always been more profuse than normal and frequently contained clots. No pain has ever been associated with her flow. No other symptoms of either a local or systemic nature have occurred during her present illness save that for the past month she has suffered from palpitation and weakness.

She has been treated at various clinics for her menstrual disturbances. Diagnostic dilatation and curettage was performed seven times from 1924 to 1932. In 1929 at laparotomy, the right ovary, enlarged and cystic, was removed. The scrapings obtained by curettement were always reported as thickened and hyperplastic by the pathologist.

None of these measures influenced the patient's complaint and her menstrual irregularity continued

until on September 19, 1934, she presented herself at the Hutchinson Memorial Clinic. Her bleeding at this time had been continuous for the past two months and necessitated the use of two napkins daily.

Physical examination at that time was essentially negative and vaginal examination revealed only a light enlargement of the left ovary. The Wassermann was negative and urinalysis showed no abnormal changes. The blood count revealed a secondary anemia of mild extent.

A tentative diagnosis of functionl uterine bleeding resulting from hyperplasia of the endometrium was made and normal therapy was instituted. Her bleeding continued daily as before. Dessicated thyroid gland was added to the daily dose of follutein and this therapy was continued for another month, at the end of which time, her bleeding was unabated. On December 3, 1934, amniotin, 2 c.c. or 800 units, was given daily for four doses when her bleeding became much more excessive and this therapy was discontinued. The case was reviewed before referring her to the hospital for hysterectomy and it was decided that in spite of her negative Wassermann, a therapeutic test with neoarsphenamine should be attempted before performing hysterectomy. The Wassermann was repeated and again reported negative. Six-tenths gram of neoarsphenamine was given intravenously on December 22 and the Wassermann, repeated on the two succeeding days, was reported negative. Her bleeding became progressively less and one week after the injection, entirely ceased.

The menses occurred regularly, every twenty-eight days, of seven days duration for two months after the injection when her metrorrhagia began again. Active antiluetic therapy was then instituted and her menses have been normal since, with one exception. During a period of rest from the first course of neoarsphenamine bleeding occurred daily until the resumption of treatment.

Dr. Hilliard Miller presented a paper on "Carcinoma as a Cause of Uterine Bleeding" which will be published elsewhere.

Next meeting Wednesday, December 5, 1936
Scientific Session
Symposium—Peptic Ulcer
Dr. Alton Ochsner, Presiding

TRANSACTIONS OF ORLEANS PARISH MEDICAL SOCIETY

CALENDAR

DECEMBER 2. Mercy Hospital Staff, 8 p. m.

DECEMBER 2. Clinicopathologic Conference, Touro Infirmary, 11:15 a. m. to 12:15 p. m.

DECEMBER 2. Board of Governors, 1st and 2nd District Dental Society, 8 p. m.

DECEMBER 7. Board of Directors, Orleans Parish Medical Society, 8 p. m.

DECEMBER 7. Eye, Ear, Nose and Throat Hospital Staff, 8 p. m.

DECEMBER 7. Pathologic Conference, Hotel Dieu, 8:15 p. m.

DECEMBER 8. Charity Hospital Dental Staff, 8 p. m.

DECEMBER 9. Touro Infirmary Staff, 8 p. m.

DECEMBER 11. French Hospital Staff, 8 p. m.

DECEMBER 14. ORLEANS PARISH MEDICAL SOCIETY, 8 p. m.

DECEMBER 15. Charity Hospital Medical Staff 8 p. m.

DECEMBER 16. Clinicopathologic Conference, Touro Infirmary, 11:15 a. m. to 12:15 p. m.

DECEMBER 16. Charity Hospital Surgical Staff, 8 p. m.

DECEMBER 17. Eye, Ear, Nose and Throat Club, 8 p. m.

DECEMBER 18. I. C. R. R. Hospital Staff, 12 noon.

DECEMBER 21. Hotel Dieu Staff, 8 p. m.

DECEMBER 22. Baptist Hospital Staff, 8 p. m.

DECEMBER 23. Clinicopathologic Conference, Touro Infirmary 11:15 a. m. to 12:15 p. m.

During the month of November the Society held two regular Scientific Meetings as follows:

November 9

The Treatment of Trichophytosis Interdigitalis
By Dr. Leo N. Elson.
Discussed by Dr. D. L. Watson.

Clinical Aspects of Goiter.
By Dr. Howard R. Mahorner.
Discussed by Dr. Alton Ochsner.

Color Motion Pictures of the Larynx.
By Dr. Francis E. LeJeune.

November 23

The Etiology of Venereal Lesions.
By Drs. E. von Haam and Charles Lafferty.
Discussed by Dr. James K. Howles.

Some Minor Disorders of the Female Urethra.
By Dr. Eugene Vickery.
Discussed by Dr. Hilliard E. Miller.

Surgical Treatment of Scleroderma.
By Dr. Michael E. DeBakey.
Discussed by Dr. Rudolph Matas.

At this meeting the following nominations for Officers for 1937 were handed in to the Secretary in accordance with the By-Laws:

NOMINATIONS

PRESIDENT—Dr. James T. Nix.
Endorsed by Drs. Frederick L. Fenno, Val H. Fuchs, Rudolph Matas and Thos. Benton Sellers.

FIRST VICE-PRESIDENT—Dr. Shirley C. Lyons.
Endorsed by Drs. Urban Maes and Rudolph Matas.

SECOND VICE-PRESIDENT—Dr. Geo. Hauser.
Endorsed by Drs. M. J. Lyons and R. F. Sharp.

THIRD VICE-PRESIDENT—Dr. Edgar Burns.
Endorsed by Drs. Val H. Fuchs and B. J. DeLaureal.

SECRETARY—Dr. Gilbert C. Anderson.
Endorsed by Drs. Frank J. Chalaron and J. A. Danna.

TREASURER—Dr. Edwin H. Lawson.
Endorsed by Drs. Frank J. Chalaron and Thos. Benton Sellers.

LIBRARIAN—Dr. Alton Ochsner.
Endorsed by Drs. C. Grenes Cole and Emmett Irwin.

ADDITIONAL MEMBERS BOARD OF DIRECTORS

Dr. Donovan C. Brown—Endorsed by Drs. Manuel Gardberg and Ben R. Heninger.

Dr. F. E. LeJeune—Endorsed by Drs. W. P. Gardiner and Maurice Lescale.

Dr. Frederick L. Fenno—Endorsed by Drs. L. C. Chamberlain, Val H. Fuchs and Waldemar R. Metz.

The following Delegates and Alternates to the Louisiana State Medical Society were elected for a term of two years:

DELEGATES

Dr. C. Grenes Cole	Dr. Geo. H. Hauser
Dr. Leon J. Menville	Dr. Frederick L. Fenno
Dr. Wm. H. Seemann	Dr. John A. Lanford
Dr. Frank J. Chalaron	Dr. D. J. Murphy
Dr. Waldemar R. Metz	Dr. Edwin L. Zander

Dr. John Signorelli

ALTERNATES

Dr. S. M. Blackshear	Dr. Jerome E. Landry
Dr. H. B. Alsobrook	Dr. G. C. Anderson
Dr. Alton Ochsner	Dr. Roy B. Harrison
Dr. E. H. Lawson	Dr. P. Graffagnino
Dr. Roy W. Wright	Dr. H. E. Miller
Dr. I. M. Gage	Dr. Marcy J. Lyons

Dr. S. B. McNair

Drs. I. M. Gage and Lucien A. LeDoux read papers before the Third District Medical Society meeting at Lafayette, Louisiana, September 11.

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Drs. John A. Lanford, Francis E. LeJeune and Leon J. Menville were guest speakers of the Gulf Coast Clinical Society at Mobile, Alabama, recently.

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Drs. C. C. Bass, Alton Ochsner and Arthur Vidrine attended the meeting of the American Association of American Medical Colleges in Atlanta.

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Drs. I. I. Lemann and John H. Musser attended the meeting of the American Climatologic and Clinical Society at Richmond, Virginia, October 26-28.

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Dr. Shirley C. Lyons attended the meeting of the Alumni Association of the Mayo Clinic at Rochester.

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Dr. Henry W. E. Walther was guest speaker before the Georgia Urological Society at Macon, November 2.

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The following doctors were elected to membership November 2:

ACTIVE: Drs. Samuel Karlin and Prudence E. Prouet.

ON TRANSFER TO ACTIVE: Drs. Michael E. DeBakey and Geo. B. Grant.

INTERNE: Drs. Henry E. Askin, Wm. S. Bethea, James R. Godfrey, James M. Hollimon, Everett M. Harrison, Onnie P. Myers, Earle D. McKelvey, J. Arthur Sproles, Jr., John J. Young, Lawrence W. Burt, Samuel T. Clark, Stanley Cohen, Samuel H. Colvin, Jr., Ralph Friedman, Albert P. Goldner, Pembroke T. Grove, Albert P. Kimball, Elizabeth Lewis, Hippolyte P. Marks, Jr., Paul L. Marks, Samuel B. Nadler, Thomas C. Naugle, Robert E. Quinn, John M. Ramage, Lee C. Schlesinger, Earl S. Seale, Edwin P. Solomon, Melvin D. Steiner and Gilbert C. Tomskey.

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TREASURER'S REPORT

ACTUAL BOOK BALANCE: 9/30/36	$1,656.83
October Credits:	$ 233.92
TOTAL CREDITS:	$1,890.75
October Expenditures:	$ 448.58
ACTUAL BOOK BALANCE: 10/31/36	$1,442.17

LIBRARIAN'S REPORT

During the month of October, 68 volumes were added to the Library. Of these six were received

by binding, 50 by gift and 12 from the New Orleans Medical and Surgical Journal. Notation of new titles of recent date is given below.

The Library has loaned 743 books and journals to doctors during October, or more than 1½ to each active member of the Society. In addition 1,116 items have been loaned to students making a total of 1,859. These figures do not include the great use of books and journals within the Reading Rooms.

On request of physicians, members of the staff have collected material on the following subjects during the month.

Boils and carbuncles.
History of etiology of malaria.
Yellow fever in New Orleans.
Diseases of the South.
History of leprosy in Louisiana.
Nervous and psychiatric aspects of hypertension.
Chronic ulcerative colitis.
Early surgery of the heart.
Dwarfism in the history of medicine.
Diseases of the nasopharynx.
Embolectomy.
Embolism of lower extremities.
Arteriography.
Hydronephrosis in children.
Discovery of anesthesia.
Heterotherapy.
Otoscleronectomy.

NEW BOOKS—October

Starling, E. H.—Principles of Human Physiology. 1936.

East, Terence—Recent Advances in Cardiology. 1936.

MacCallum, W. G.—Textbook of Pathology. 1936.

Howell, W. H.—Textbook of Physiology. 1936.

Sollmann, Torald—Manual of Pharmacology. 1936.

Pardee, H. B.—What You Should Know About Heart Disease. 1935.

Hawaii Territorial Assn.—Transactions. 1936.

Geshickter, C. F.—Tumors of Bone. 1936.

Sloan, E. P.—The Thyroid. 1936.

McGuigan, H. A.—Introduction to Materia Medica and Pharmacology. 1936.

Bailey, Hamilton—Recent Advances in Genito-Urinary Surgery. 1936.

Wolf, William—Endocrinology in Modern Practice. 1936.

McBride, E. D.—Disability Evaluation. 1936.

Burnham, F. W. E.—Haemocytes and Haemic Infections. 1913.

Aurep, G. V.—Studies in Cardiovascular Regulations. 1936.

Vesalius, Andres—Readings from Vesalius. 1936.

Gilbert C. Anderson, M. D., Secretary.

LOUISIANA STATE MEDICAL SOCIETY NEWS

THE CHRISTMAS SEAL SALE

The thirtieth nationwide Christmas Seal Sale to be conducted by the National Tuberculosis Association opened November 26 and is being carried on at present. Fourteen million seals bearing the picture of Santa Claus and the insignia of the double barred cross have been sent throughout this state by the Tuberculosis and Public Health Association of Louisiana, one of more than 2000 groups affiliated with the national organization in the campaign against tuberculosis.

In 43 parishes the seals will be sold by organized local groups, in the remaining 21 the state association will offer them through the mail, returns being made to 535 St. Charles Street, New Orleans, headquarters of the Tuberculosis and Public Health Association of Louisiana.

The Christmas Seal Sale constitutes the one fund-raising effort of the year sponsored by the National Tuberculosis Association and affiliated state groups and is the sole means of financing their educational program for the eradication of disease.

The facts that tuberculosis can be prevented and cured will be stressed in this program and the need of case finding, early diagnosis and treatment by the latest established methods, including surgery, will be fully presented.

In opening the 1936 Sale Dr. W. H. Seemann, President of the Tuberculosis and Public Health Association of Louisiana, calls attention to the fact that while the death rate from tuberculosis has been reduced to seventh place for the country at large the disease still holds third place as a cause of death in Louisiana. He quotes the following extract from a statement issued by Dr. Kendall Emerson, Managing Director of the National Tuberculosis Association:

"Despite the fact that we have tuberculosis more nearly under control than ever before, we cannot afford to relinquish an atom of the pressure which is being applied to exterminate it. In a sense we are at the most difficult period in the whole campaign. We are now looking for a hidden enemy lurking in unexpected places. This requires added resources and admits of no retrenchment in our program.

"The frequently reiterated fact that while tuberculosis has taken sixth or seventh place as a cause of death in the whole population, it still leads in the deaths between 15 and 40, proves the

need of a continued campaign. Although diagnostic methods have steadily improved it is still true that only 13 per cent of sanatorium admissions are found to be in the first stages of the disease. This means that far too many unrecognized cases in the community are still threatening their neighbors with infection. There is no phase of our work where effort can be relaxed. On the other hand we are at a point in the history of tuberculosis control when we can claim with confidence that a more intensive drive along accepted lines gives reasonable hope of actual elimination of the disease."

In New Orleans the representative group is the Tuberculosis Committee of New Orleans of which Dr. John H. Musser is chairman. The Committee has announced its chief concern at this time to be the work of promoting tuberculin tests and roentgen rays among the school children of the city for the purpose of locating those unrecognized cases to which Dr. Emerson refers.

SHREVEPORT MEDICAL SOCIETY

The regular meeting of the Shreveport Medical Society was called to order on November 3, 1936, with 18 members and one guest present. The minutes of the previous meeting were read and adopted.

Treasurer's Report: The Treasurer reported that there were 131 members with dues paid and that there was $1209.81 in the bank with no outstanding bills.

Committee Reports: The Resolutions Committee, Dr. Butler, Chairman, introduced a resolution of regret on the death of Mrs. Bella Abramson and these resolutions were duly adopted by the Society.

The Committee investigating the application of Dr. R. B. DeLee for membership reported favorably.

Scientific Program: Dr. Cohenour presented an interesting case of imperforate hymen with hematocolpos. This case was discussed by Drs. Winder, Trifon, J. A. Hendrick and Sanders. Dr. Pipes presented the subject of allergic dyspepsia. This paper was discussed by Drs. DeLee, Cohenour and Rigby.

Unfinished Business: The regular rules were suspended and Dr. DeLee was elected to membership by open ballot. The oath was administered by the President.

New Business: Application of Dr. P. R. Googe for membership was received and the Society ordered that it take the usual course.

Paul D. Abramson, M. D., Sec.

AMERICAN UROLOGICAL ASSOCIATION SOUTHEASTERN BRANCH SOCIETY

The next meeting of the Southeastern Branch of the American Urological Association is to be in Charlotte, Friday and Saturday, December 4 and 5 with Dr. H. W. E. Walther in the chair. The following are some of the gentlemen who are to appear on the scientific program: Dr. N. G. Alcock, Iowa City; Dr. Edgar G. Ballenger, Atlanta; Dr. J. Dellinger Barney, Boston; Dr. H. C. Bumpus, Pasadena; Dr. Theo. M Davis, Greenville and Charlotte; Dr. Russell S. Ferguson, New York; Dr. Charles M. McKenna, Chicago; Dr. Alexander Randall, Philadelphia; and Dr. Gilbert J. Thomas, Minneapolis.

This is the third annual meeting of the Society. The first meeting was in Atlanta and the last in Nashville. There are now 210 members, 182 active and 28 associate. During the three years of the Society's existence there have been two associate members who have had their status changed to active membership because of a change in their qualifications. This plan of having both active and associate members is one that is being followed by all of the branch societies.

There are several items of interest to all members of the Association that should be known:

An objective, suggested by our Past President, Dr. Ballenger, is that urologic advances of a practical nature be abstracted or used as subjects for editorials for the state journals in our territory. By this means the doctor doing general medicine, who sees the patients first, could be kept better informed as to our progress in diagnosis and treatment. Urologists are being called upon to treat too many patients whose conditions have become incurable because of neglect in the early stages of their disorders.

A history of urology of the Southeastern States is getting under way. There has been a committee appointed to compile facts concerning urology in the early days. If you know of any of the older physicians who are familiar with the early works of urology in this section, we will appreciate it if you will communicate these facts to the Executive Committee member of your state.

Invitations have been received from the following cities to hold the next (1937) meeting there: Tampa, Atlanta, Louisville, Miami, Birmingham, and Memphis.

AMERICAN COLLEGE OF SURGEONS

At the meeting of the American College of Surgeons held in Philadelphia the week of October 19 Dr. Alton Ochsner was made a regent to hold office for three years. New Orleans has been represented on the Board of Regents during past years by Dr. Rudolph Matas, Dr. C. Jeff Miller and Dr. F. W. Parham.

Dr. Hugh T. Beacham was placed on the Honor Roll, his histories being among the five best submitted in the United States. Dr. Hilliard E. Miller and Dr. Thomas B. Sellers were elected to the Board of Governors of the College.

Dr. James T. Nix had a magnificent exhibit of oil paintings, microphotographs and growth specimens of malignant lesions. This exhibit was so acceptable to the Board of Regents that it was placed in the Hall of Science in Chicago.

NEWS ITEMS

The following members of the faculty of the Graduate School of Medicine of Tulane University attended the meeting of the Southern Medical Association held at Baltimore, Maryland: Prof. Walter J. Otis, Dr. Rowley M. Penick, Jr., and Prof. Wm. A. Wagner.

Dr. Henry W. E. Walther, senior urologist of the Southern Baptist Hospital, New Orleans, was guest speaker before the Georgia Urological Society, at Macon, on November 2, his subject being: Present Status of Treating Urinary Infections.

Drs. O. W. Bethea and Lucien LeDoux addressed the Seventh District Medical Society meeting in Lake Charles on November 5, 1936.

SOUTHERN MEDICAL MEETING IN NEW ORLEANS

Louisiana and the city of New Orleans are to be honored by the Southern Medical Association which, at its meeting held recently in Baltimore, decided to hold its 1937 session in New Orleans. This meeting is announced for November 30 to December 3. The medical profession of the city will welcome heartily this great organization next year when they come to New Orleans.

SISTER STANISLAUS HONORED

The middle of last month there was held in the Municipal Auditorium a magnificent meeting which paid tribute to the Sisters of Charity and the great leader of the order of Charity Hospital, Sister Stanislaus. Tribute was paid by representatives of many religious faiths and the great work these wonderful women are doing was stressed. The occasion was most inspiring.

INFECTIONS DISEASES IN LOUISIANA

Dr. J. A. O'Hara, Epidemiologist for the State of Louisiana, has furnished us with the weekly morbidity reports for the State of Louisiana, which contain the following summarized information: For the week ending October 17, pulmonary tuberculosis led all reportable diseases with 36 cases listed. Other diseases listed in double figures included 33 cases of pneumonia, 30 of cancer, 20 of diphtheria, 19 of malaria, 16 of typhoid fever and 12 of syphilis. Caddo, Sabine and Webster Parishes each reported 3 cases of typhoid fever. There was a case of poliomyelitis reported from West Carroll Parish and a case of cerebrospinal meningitis from Richland Parish. In Orleans Parish 1 case of typhus fever was discovered. For the week ending October 24 there was a large increase in the number of cases of pulmonary tuberculosis, syphilis and gonorrhea reported, there being 75 of the former and 73 cases each of the latter diseases. Pneumonia also increased to 55 cases and malaria to 47. Other double figure diseases included 29 cases of diphtheria, 25 of cancer, 23 of influenza and 15 each of scarlet fever and typhoid fever. No Parish in the State reported more than two cases of typhoid fever. Of the rarer diseases 1 case of undulant fever was listed from Orleans Parish. For the week ending October 31 there was a decrease in reportable diseases all along the line. Gonorrhea with 45 cases, followed by syphilis with 444 cases were the two most popular diseases. Other diseases reported included 33 cases of cancer, 32 of pneumonia, 26 of pulmonary tuberculosis, 24 of malaria, 15 of diphtheria, 11 of typhoid fever and 10 cases of the rather infrequently reported disease, hookworm. Again this week no Parish reported more than two cases of typhoid fever, however a case of undulant fever was reported from East Baton Rouge, and one each from Franklin, St. Helena and West Feliciana Parishes. One case of meningitis was listed from Orleans Parish. For the 45th week of the year, ending November 7, syphilis again came into its own as one of the most frequently reported diseases, there being 59 cases recorded, followed in order of frequency by 47 cases of malaria, 38 of pulmonary tuberculosis, 36 each of pneumonia and influenza, 34 of cancer, 29 of diphtheria, 27 of gonorrhea and 16 of scarlet fever. The only unusual disease reported this week was 1 case of epidemic cerebrospinal meningitis from Orleans Parish, which was imported from some other Parish.

HEALTH OF NEW ORLEANS

The Department of Commerce, Bureau of Census reports that for the week ending October 10, there were listed 162 deaths in New Orleans, divided 96 white and 66 negro. The death rate for the group as a whole was 17.6; for the white race 14.7 and for the negro 24.7. The infant mortality rate this week was 134 largely as a result of the rate of 155 in the negro population. For the next week, ending October 17, there were somewhat fewer deaths in the city, there being 153 listed, giving a rate of 16.6. The infant mortality rate this week was 116. The rate for the following week, ending October 24, was just about the same as the previous week, being 16.3 as a result of 150 deaths divided 90 white and 60 negro. The infant mortality rate this week was 93. For the week ending October 31, the total deaths and the death rate were exactly the same as the previous week, however there were

4 fewer deaths in the white race and 4 more in the negro than were reported the previous week. The infant mortality rate was only 70 this week. Figures for the rates of the two races were not given. For the week ending November 7, there were almost no changes from the previous two weeks, there being 148 deaths with the same number of white people dying in the city as in the previous week and two less negroes. The infant mortality rate was 76. So far this year the record is not as good as it was last year. The death rate for the first 45 weeks of this year is 18.3 as contrasted with 16.1 in 1935.

WOMAN'S AUXILIARY

Louisiana State Medical Society

President, Mrs. James Byron Vaughan, Monroe.

President-Elect, Mrs. George D. Feldner, New Orleans.

First Vice-President, Mrs. F. G. Ellis, Shreveport.

Second Vice-President, Mrs. T. H. Watkins, Lake Charles.

Third Vice-President, Mrs. E. B. Middleton, Homer.

Fourth Vice-President, Mrs. R. R. Arceneaux, Welsh.

Recording Secretary, Mrs. C. Grenes Cole, New Orleans.

Corresponding Secretary, Mrs. Joseph P. Brown, Monroe.

Treasurer, Mrs. Courtland P. Gray, Monroe.

Parliamentarian, Mrs. R. T. Lucas, Shreveport.

CADDO PARISH

The re-assembly meeting of the fall of the Woman's Auxiliary to the Shreveport Medical Society was held on Wednesday afternoon in the home of the President, Mrs. R. T. Lucas, with 65 members enjoying the occasion. With Mrs. Lucas in the chair, there was a brief business session. The reports of the officers and committee chairmen were given and plans for a Hallowe'en barn party for the evening of October 30 were discussed.

Mrs. Bush read a tribute to the memory of the beloved late Mrs. Bella Abramson while the auxiliary members stood in sorrow with heads bowed.

The program consisted of several interesting current events in the world of medicine given by Mrs. Harold Quinn, and a charming dramatic entertainment by the gifted Miss Margaret McMichael.

After the meeting adjourned, the tea-hour was enjoyed by all those present.

Mrs. M. D. Hargrove,
Publicity Chairman.

CLAIBORNE PARISH

The Claiborne Parish Woman's Auxiliary of the Claiborne Parish Medical Society held their October meeting in the home of Mrs. J. C. Sherman, Haynesville. A brief business session was held with Mrs. R. H. Marlatt presiding. Reports of officers and committee chairmen were heard. Definite plans were made for the regular tuberculosis sale and announcements of the date of the sale to be made.

Mrs. H. R. Marlatt, State Chairman of the Indigent Physicians' Fund stressed the importance of a liberal donation to the Fund the coming year.

The Auxiliary was fortunate in having Miss Nettie Ethridge, Secretary to Dr. Ayo in the East Louisiana Hospital at Jackson, La., as their guest, she being a visitor in the home of her uncle, Dr. C. W. Phillips of Haynesville.

The Claiborne Parish Auxiliary extends congratulations to the Fourth District Medical Society in their selection of Dr. S. A. Tatum for their President for the coming year. The Auxiliary wish to express to Dr. Tatum their best wishes for a very successful and happy year.

Mrs. C. W. Phillips,
Publicity Chairman.

OUACHITA PARISH

The Woman's Auxiliary to the Ouachita Parish Medical Society held their first meeting of the season at the Lotus Club with 21 members present. The President, Mrs. J. P. Brown, conducted the meeting during the luncheon. Two new members, Mrs. A. Scott Hamilton, and Mrs. William Guerriero, were welcomed by the auxiliary members.

Mrs. John Procher gave a most interesting paper on the life of Dr. E. Lewis, an outstanding physician of Louisiana. Mrs. Burgoyne and Mrs. Sam Bendel, were guests of the auxiliary.

Mrs. W. L. Bendel,
Publicity Chairman.

JEFFERSON DAVIS PARISH

Mrs. John G. McClure was hostess to the Jefferson Davis Parish Medical Auxiliary Tuesday afternoon, November 10, at her home in Welsh. Mrs. G. W. Remage opened the program with the reading of an article which told of an amazing number of unsanitary conditions in our national capital.

Mrs. E. V. LaCour and Mrs. Claude A. Martin both gave articles on the prevention of blindness.

Plans were made for conducting an essay contest on "Sight Saving" with a subscription to Hygeia as a reward.

Mrs. Claude A. Martin,
Publicity Chairman.

ORLEANS PARISH

It was a large and enthusiastic group of Auxiliary members and their guests who met at the Orleans Club November 11, for their monthly meeting and reception. The guest speaker for the afternoon, Mr. Hermann Deutsch, New Orleans writer and

newspaper man, gave a review of William Faulkner's new book, "Absalom, Absalom." It was a most interesting program and much enjoyed by everyone. During the business meeting, the tuberculosis group of auxiliary activities gave a splendid report of work underway through the schools and New Orleans Tuberculosis Association. The Auxiliary is providing specially prepared posters to be placed in all grades of the public schools. These posters are large and attractive, telling a health story which children of each respective grade will be able to understand. The principals and teachers have expressed their appreciation for this much needed assistance. Speakers have also been procured to lecture before the Parent-Teachers Association of all white and negro schools. Mrs. Francis Lejeune and Mrs. Hermann Gessner and their committees have been untiring in their efforts and are to be commended for their splendid work.

In co-operation with the New Orleans Tuberculolis Committee, a large group of auxiliary members under the direction of Mrs. George Feldner have been preparing thousands of Christmas Seals for sale to the public as part of this campaign. The work of this commitaee has been of invaluable help. The tuberculosis campaign is only part of the educational program of the Auxiliary under the capable leadership of Mrs. W. W. Butterworth.

Mrs. Edgar Burns,
Publicity Chairman.

CADDO PARISH

On Wednesday, November 11 the members of the Woman's Auxiliary to the Shreveport Medical Society turned back the pages of time and lived for a few hours in the old South. The Shrine clubhouse on Cross Lake was chosen for the occasion. The South's loveliest flowers were used in profusion throughout the clubhouse. The hostesses, in gay-colored antebellum costumes of taffeta and lace, greeted members as they arrived and after the program, served refreshments typical of the old South.

The business session was conducted by the President, Mrs. R. T. Lucas. The program consisted of an address on "The Southern Doctor" by Dr. S. C. Borrow, and songs by a colored quartette. Interesting current events were given by Mrs. W. M. Scott.

Mrs. M. D. Hargrove,
Publicity Chairman.

BOOK REVIEWS

The Thyroid: Surgery, Syndromes: By E. P. Sloan, M. D. Edited by Members of The Sloan Clinic. Charles C. Thomas, Springfield, 1936. Illus. pp. 475 with index. Price $10.00.

The author of this book, who regrettably died before it had gone through the press, was the founder of the Sloan Clinic in which, up to 1934, over 20,000 thyroid patients had been registered, over 15,000 of whom had been operated on. The basis of this enormous experience is the background of the book, which occupied ten years in the writing.

The subject of thyroid disease has been emphasized chiefly from the surgical aspect but nothing important on any phase seems to have been omitted. The chapter on etiology is comprehensive, though the author himself leans to the mineral deficiency theory. The chapter on phophylaxis is insistent that the keynote of the future therapy of goiter is not surgery but the prophylaxis of endemic goiter, and very striking are the statistics from European endemic centers, which show that five generations of goitrous forebears will result in a high incidence of cretinism. Timely surgery, with the idea of decreasing cardiovascular complications, is also stressed. In this connection it is interesting to note that when Sloan first advanced this idea, in a paper read in 1915 and based on a thousand thyroid operations, such a storm of discussion followed at the meeting that the editors of several journals declined to publish the paper in its entirety on the ground that it would merely arouse controversy.

Although the author was one of the founders of the American Association for the Study of Goiter, the first meeting of which was held at the Sloan Clinic, he does not use the very simple classification recommended by that society (diffuse, diffuse toxic, nodular, nodular toxic). After pointing out the needs of a universal language for thyroid disease, which will undoubtedly, he says, come in time, he carefully defines all the terms now in use and reviews briefly the current theories on classification. His own grouping includes nontoxic goiter, toxic adenoma, exophthalmic goiter, and a miscellaneous group, under each of which are several sub-groups. This is not the place to discuss the logic or convenience of his classification in comparison with others, but the author's own comment on it is illuminating, that for twenty-five years he had tried to devise a classification which would prove adequate, but every one he tried "failed to offer selective pigeon-holes for the different types of disease." His classification of nodular goiter into four clinical groups, namely, cardiovascular, anaphylactic, hyperplastic and

mixed, throws considerable light upon the confused subject of toxic nodular goiter and explains why it sometimes differs from diffuse goiter both in its symptomatology and in its response to Lugol's solution.

Operative risk is estimated in six different degrees, ranging from the excellent risk of the patient with an atoxic gland to the inoperable state of the patient first seen in crisis or in extremis. Against each degree of risk is set the amount of surgery justified in each risk, and the contraindications to surgery. The indications for stage surgery are few, but urgent when they do exist. Another excellent feature of this chapter is a summary of the prognosis under each type of goiter. Most of the facts are generally known; a few are surprising, and illustrate the wisdom of pausing at intervals to analyze one's experience with a view to mapping one's future course. The chapter on surgical anatomy is largely based on the author's original observations and dissections. It will be remembered that he was the first to point out the possibility of removing the gland without cutting the prethyroid muscles, by utilizing flexion, rotation and extension.

There are valuable chapters on the parathyroid and the thymus glands, the latter of which throws a new light on a little understood subject. Not generally known, the author points out, are Blackford and Freiligh's studies from the Mayo Clinic, which show that in 100 postmortems on fatal cases of Graves' disease, every patient under 40 years of age exhibited a hyperplastic thymus gland, as did 50 per cent of the patients over that age. He points out also the work of Hammar, which throws into the discard the general notion that the thymus gland atrophies early; actual atrophy does not begin under 15 years of age.

It is a curious omission that there is no mention in the whole book of the hepatic factor in thyroid disease, which many observers, of whom the reviewer is one, are now inclined to consider very important.

The book is excellently written from the standpoint of both clarity and interest. The arguments for both sides of debatable points—which still include most points in thyroid disease—are given with scrupulous fairness, though one is left in no doubt as to which the author himself accepts. There are no unsupported statements. The illustrations are well selected and carefully reproduced, and the diagrammatic exposition of the production of goiter (fig. 14) ought to be particularly useful for teaching purposes. The bibliography includes 254 references, in one sense rather a small number, but entirely adequate in view of the author's enormous personal experience. The bibliography by authors which follows the bibliography by order of reference is helpful. The next edition of the book might perhaps be improved by the addition of more recent contributions, for the sake of completeness even if they are not actually needed.

This book is as practical as it is scientific and comprehensive. It will be of value to any physician who in interested in dysfunction of the thyroid gland, and it ought to be read and pondered by every surgeon who undertakes to do thyroid surgery. A minimal mortality, as Sloan points out, of less than one per cent seems not an ultimate achievement in view of what has already been achieved. But at that, we doubt whether the utopian day will ever come to which he looks forward, when the "future will place simple thyroidectomy and tonsillectomy on the same plane as regards operative risks."

FREDERICK FITZHERBERT BOYCE, M. D.

Recent Advances in Cardiology: By Terence East, M. A., D. M., F. R. C. P. and Curtis Bain, M. C., M. R. C. P. Philadelphia. P. Blakiston's Son and Co., 1936. pp. 350. Price $5.00

This latest edition of East and Bain's valuable book is more than its name indicates, as it incorporates not only advances in cardiology, but serves as perhaps the best and most practical brief manual on the subject. Those who were familiar with the earlier editions will find this volume greatly improved. The chapter headings may be listed to indicate its scope. Heart Failure; Treatment of Heart Failure; Coronary Occlusion and Myocardial Infarction; Angina Pectoris; Auricular Fibrillation and Auricular Flutter; Disorders of Conduction; Ectopic Disorders of Rhythm; Infections of the Heart and Aorta; Hypertension; Vascular Diseases; Peripheral Circulatory Failure; The Heart in Hyperthyroidism; The Heart in Pregnancy, Anesthesia and the Heart; The Heart in Anemia; Congenital Lesions; The Radiology of the Heart and Aorta; The Examination of the Heart with the Electrocardiograph; The Diagnosis of the Healthy Heart.

All the chapters are brief, and, of necessity, the treatment of the subjects discussed is sometimes inadequate, as in the case of electrocardiography, for example. Yet, with very few exceptions, so far as the reviewer is able to determine, the views expressed are sound. Certainly the interpretation of the numerous electrocardiograms is accurate.

It will inevitably happen that in a brief discussion of any large subject, the authors will omit some things which seem important to any reviewer. As instances of such omission may be mentioned: the physiological explanation of the action of digitalis in heart disease; the recognition of rheumatic mitral insufficiency as a frequent accompaniment of mitral stenosis; the recognition of arteriosclerotic heart disease as a clinical entity; and

the useful electrocardiographic sign of arteriosclerotic (hypertensive) heart disease. This reviewer would like, further, to criticise the inclusion of figure 75, which shows a "composite normal electrocardiogram." This is a naive conception, for the picture is one which will never be obtained from any heart, and is valueless.

RICHARD ASHMAN, Ph. D.

Intoduction to Materia Medica and Pharmacology: By Hugh A. McGuigan, Ph. D., M. D. and Edith P. Brodie, A. B., R. N. St. Louis. C. V. Mosby Company, 1936. pp. 580. Price $2.75.

This book, intended for instruction of nurses, especially features "its approach through a groundwork of the fundamentals." In this respect, the historical development of medicine and pharmacy is traced in a manner which is thoroughly interesting and instructive. The pharmocological basis of therapeutics is presented as far as is practical in a book of this sort. The treatment throughout is clear and concise and is based on excellent authority. The material of the recent U. S. P. and N. F. is included and in most other respects the context is consistent with the more recent aspects of therapeutics. Some might prefer less conservatism in the selection of the newer drugs. For instance, the only barbiturates mentioned are barbital and phenobarbital while the shorter acting barbiturates are omitted. Similarly, only quinine and arsenic are mentined in the treatment of malaria; carbarsone is the only recent amebicide discussed and hexyl-resorcinol and tetrachlorethylene are omitted from the discussion of anthelmintics.

The price is unusually reasonable for a copiously illustrated book of this character and this should help to give this book the wide distribution which it clearly deserves.

R. P. WALTON, Ph. D.

A Text-Book of Pharmacology and Therapeutics or the Action of Drugs in Health and Disease: By A. R. Cushny, M. A., M. D., LL. D., F. R. S. 11th ed., thoroughly revised by C. W. Edmunds, A. B., M. D. and J. A. Gunn, M. A., M. D., D. Sc., F. R. C. P. Philadelphia. Lea & Febiger, 1936. pp. 808. Price $6.50.

The recent publication of a new U. S. P. and N. F. is appropriately being followed by the appearance of a number of new books and revisions which deal particularly with drugs and drug therapy. Among this group the appearance of a revised Cushny is of particular interest since this is generally recognized to be "the first severely critical, rigorously scientific general text-book to be written in English by an experimental pharmacologist." That this book is peculiarly adapted to the conditions of student instruction is clearly evidenced by the wide distribution of its several editions. The character of this, the eleventh revision, is such that the book may be properly expected to increase still further in general usefulness.

Pharmacology texts and pharmacology courses are always confronted with more than ordinary difficulties in the matter of arrangement. Drugs can be grouped according to their chemical relationships, according to the physiological systems on which they act or according to their therapeutic applications. The arrangement here is based on each of these methods. Heavy metals, because of a chemical similarity, hypnotics because of a common therapeutic use. This policy of grouping based on expediency has been thoroughly successful in this particular case.

There are minor disadvantages from the standpoint of the American student and these can be attributed principally to the fact that the book is intended for both English and American distribution. For instance, the significance of the N. N. R. is barely mentioned and numerous proprietaries are included which are not Council accepted.

Specific examples of important revisions are the discussion of the new morphine derivatives, the protamine insulinate combination, the liver therapy of pernicious anemia, the cyanide antidotes, the newer amebicides and the more recent advances in vitamin and endocrine therapy. The extent and character of the general revision throughout is impressive.

R. P. WALTON, Ph. D.

William's Obstetrics: By H. J. Stander, 7th ed. New York, D. Appleton-Century, 1936. pp. 1269. Price, $10.00.

This work, first published in 1903, has been one of the foremost text books in the field of obstetrics since the appearance of the first edition. It was last revised by Dr. Williams in 1930, one year before his death. The present revision has been prepared by Dr. Stander, who was associated with Dr. Williams for many years before accepting the chair of Obstetrics and Gynecology at Cornell. He is therefore thoroughly qualified for the task, and he has acquitted himself most creditably.

The general plan of the book has remained unchanged, but new chapters have been added on the subjects of hormones, urinary complications, and obstetrical analgesia and anesthesia. Its teachings remain predominatingly conservative. This is to be highly commended, especially as the book is so extensively used for the teaching of medical students. However, it is to be noted that the conservative attitude toward cesarean section in placenta praevia is regarded as ultra-conservative by many other present day teachers of obstetrics.

The section on the toxemias of pregnancy is especially outstanding, as is to be expected when

one recalls the tremendous amount of work that has been done by Stander in this field. The reviewer cannot but feel, however, that from the viewpoint of the medical student, the fifteen and one half pages on the etiology of eclampsia could advantageously be condensed. The reviewer feels that in two other ways the usefulness of this work can be enhanced. One is by the elimination of details of varying views on controversial subjects, such as the formation of the lower uterine segment, with the multiplicity of quotations from various authorities. These rather verbose discussions tend to confuse the mind of the medical student. The other suggestion would be to transfer the discussion of pelvimetry from the section on contracted pelvis to the chapter on prenatal care.

The reviewer regretfully notes that the subject of birth injuries of the child is not discussed. In his opinion, this is a matter of considerable importance to the obstetrician. This is particularly true as regards intra-cranial hemorrhage, the differential diagnosis between this condition and simple asphyxia, and its treatment. Dr. Stander may feel that this is a pediatric rather than an obstetrical problem, but the reviewer is of a different opinion and believes that the obstetrician should be fully informed on this subject.

On the whole, however, this revision is a most complete and careful one, and brings this outstanding text book thoroughly up to date. One feels that it represents the last work in obstetrics, and is as complete as a single volume work can possible be. It is recommended without hesitation as a worthy successor to the many revisions edited by Dr. Williams himself.

E. L. King, M. D.

Text-Book of Physiology: By William H. Howell, Ph. D., M. D., Sc. D., LL.D., 13th ed. Philadelphia, W. B. Saunders Co., 1936. pp. 1150. Price $7.00.

The popularity as well as inherent worth of a book is proved by the appearance of its 13th edition. The outstanding impression, however, is of similarity to older editions. Here and there, there are new figures and new material, e.g., on p. 199, the dog being conditioned; on p. 286, the discussion of nerve impulses from single end organs; on p. 511, the thermostromuhr of Rein; on p. 736, normal respiratory discharge in single fibers of the vagus.

While there is much information of value here for the beginning student of physiology as well as for the practitioner of medicine, the mode of presentation seems more particularly suited to elementary courses in physiology, such as are being given in many of our leading Colleges, than to medical men.

Henry Laurens, Ph. D.

PUBLICATIONS RECEIVED

D. Appleton-Century Company, Inc., New York: Textbook of General Surgery by Warren H. Cole, M. D., F. A. C. S. and Robert Elman, M. D. Urology by Edward L. Keyes, Ph.D., F. A. C. S., F. R. C. S. and Russell S. Ferguson, A. B., M. D.

P. Blakiston's Son & Company, Inc., Philadelphia: Diseases of Infancy and Childhood by Wilfred Sheldon, M. D., F. R. C. P.

The Commonwealth Fund, New York: Brucella Infections in Animals and Man by I. Forest Huddleson. Snow on Cholera, Reprint of Two Papers by John Snow, M. D. Community Health Organization edited by Ira V. Hiscock. Papers by Charles V. Chapin, M. D. Recording of Local Health Work by W. F. Walker, Dr. P. H., and Carolina R. Randolph.

F. A. Davis Company, Philadelphia: Modern Treatment and Formulary by Edward A. Mullen, P. D., M. D., F. A. C. S. Applied Dietetics by Sanford Blum, A. B., M. S, M. D. Allergic Diseases by Ray M. Balyeat, M. A., M. D., F. A C. P.

Paul B. Hoeber Inc., New York: Keeping Your Child Normal by Bernard Sachs, M. D.

The John Hopkins Press, Baltimore: A Dissertation on the Sensible and Irritable Parts of Animals by Albrecht von Haller (London, J. Nourse, 1755).

Lea & Febiger, Philadelphia: Modern Urology in Original Contributions by American Authors edited by Hugh Cabot, M. D., LL.D., C. M. G., F. A. C. S. (2 vols.) Urological Roentgenology by Miley B Wesson, M. D. and Howard E. Ruggles, M. D.

The Macmillan Company, New York: Treatment in Psychiatry by Oskar Diethelm, M. D.

The C. V. Mosby Company, St. Louis: The Practice of Medicine by Jonathan Campbell Meakins, M. D., LL. D.

W. B. Saunders Company, Philadelphia: Medical Clinics of North America (St. Louis Number—September 1936). Bright's Disease and Arterial Hypertension by Willard J. Stone, B. Sc., M. D., F. A. C. P.

The Williams & Wilkins Company, Baltimore: Medical Classics compiled by Emerson Crosby Kelly, M. D.

The Year Book Publishers, Chicago: The 1936 Year Book of General Medicine edited by George F. Dick, M. D., Lawrason Brown, M. D., George R. Minot, M. D., S. D. F. R. C P., (Hon.) Edin., William B. Castle, M. D, A. M., M. D., (Hon.) Utrecht, William D. Stroud, M. D. and George B. Eusterman, M. D.